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REPORT
OF THE
COMMISSIONERS
APPOINTED TO INQUIRE INTO THE
COST AND APPLICABILITY
OF THE
EXHIBITION BUILDING IN
HYDE PARK.

Presented to both Houses of Parliament by Command of Her Majesty.



LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
FOR HER MAJESTY'S STATIONERY OFFICE.

1852.

REPORT

OF THE

COMMISSIONERS

APPOINTED TO INQUIRE INTO THE

COST AND APPLICABILITY

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FOR THE MUSEUM OF NATURAL HISTORY.

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LETTER from Sir C. E. TREVELYAN to LORD SEYMOUR.

MY LORD,

Treasury Chambers, 13th Dec. 1851.

I AM commanded by the Lords Commissioners of Her Majesty's Treasury to acquaint you that Lord John Russell has called the attention of this Board to the answer which Her Majesty was graciously pleased to make to the Address of the House of Commons, signifying Her intention of causing inquiry to be made into various matters of detail connected with the possible maintenance of the Building for the Exhibition of 1851.

Lord John Russell states that it is Her Majesty's desire that an inquiry should be made, in order to ascertain the price at which the Government could purchase the Building, the cost at which it could be converted into a permanent structure, the site which should be preferred for its continuance, the cost of removing and refixing it, the purposes to which it might be advantageously applied, and the probable expenditure which would be required for its maintenance.

Lord John Russell suggests that your Lordship, Sir W. Cubitt, and Dr. Lindley should be appointed Commissioners to conduct this inquiry, and to report the result to their Lordships.

I have therefore to request that you will have the goodness to inform my Lords whether you will consent to act upon the proposed commission in conjunction with the above-named gentlemen.

I have the honour to be,

My Lord,

Your Lordship's most obedient Servant,

C. E. TREVELYAN.

The Lord Seymour,
&c. &c.

REPORT

Letter from Sir C. E. Trevelyan to Lord Seymour

My Lord,
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Lord John Russell states that it is Her Majesty's desire that an inquiry should be made, in order to ascertain the price at which the Government could purchase the Budget, the cost at which it could be converted into a permanent structure, the site which should be preferred for its construction, the cost of removing and raising it, the purposes to which it might be advantageously applied, and the probable expenditure which would be required for its maintenance.

Lord John Russell suggests that your Lordship, Sir W. Cubitt and Mr. Lindley should be appointed Commissioners to conduct this inquiry, and to report the result to their Lordships.
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I have the honour to be,

My Lord,

Your Lordship's most obedient servant

C. E. TREVELYAN

The Lord Seymour,

Sec. Sec.

REPORT.

My Lords,

Office of Works, &c. 19th February 1852.

IN compliance with your Lordships directions we have made inquiry into the several matters referred to us in the Treasury letter, dated the 13th of December 1851.

It will be most convenient that we should in the first place report upon those questions which will admit of distinct and definite replies; these are,—

I. The price at which the Government could purchase the Exhibition Building.

It appears that since the 31st of December 1851 the Building has been given up by the Commissioners appointed to superintend the Exhibition, and has become the sole property of the Contractors. In order, therefore, to obtain a reply to this question, we applied to Sir C. Fox, and he has stated on the part of the Contractors that the price of the Building as it now stands is 65,834*l.* 7*s.* 11*d.*, to which amount, however, must be added a sum for its maintenance since the first of December. Sir C. Fox has stated that he expects the Royal Commissioners to pay a sum of 20,912*l.* 4*s.* 4*d.* beyond what he has already received, and if this expectation should be realized the purchase money would be reduced to that extent.

Q. 5.

II. The cost at which it could be adapted for a permanent structure.

The works necessary for this purpose the Contractors would undertake to execute for the sum of 26,000*l.*, assuming that it were determined to retain the Building on its present site.

Q. 90.

III. The cost of removing the Building, and refixing it upon another site.

The answer to this question must of course depend upon the distance of the removal, and the nature of the soil upon which it may be proposed to refix the Building; but assuming it to be within a distance to which the materials could be carted, and that the site chosen for its re-construction were attended with no unfavourable circumstances, Sir C. Fox has stated the cost of its removal and re-construction, including such improvements as would adapt it for a permanent building, to be 61,500*l.* In other words, adding the cost of removal and re-construction to the price of the purchase, the Exhibition Building could be removed and refixed for the sum of 127,335*l.* in a condition in which it could be permanently maintained.

IV. The probable cost which would be required for the maintenance of the Building.

The Contractors would undertake to maintain the structure, including the cost of painting it externally and internally every four years, for the sum of 5,000*l.* a year.

The other questions which your Lordships have submitted to our consideration must be matter of opinion, and will not allow of such easy solution. These are,—

V. The purposes to which the Building could be most advantageously applied.

Upon this point a variety of suggestions have been offered.

A large covered space affords, it is said, accommodation for innumerable objects and facilities for public amusement and instruction. These are advantages which, it is argued, should not be neglected, but should in some way or other be rendered available; and accordingly the Exhibition Building might, it has been suggested, comprise within its ample area museums, sculpture galleries, lecture rooms, sheltered walks for invalids, places of recreation for the idle, and of scientific research for the studious.

It is impossible fairly to examine these various suggestions without at the same time considering another question ; namely,

VI. The site which it may be desirable to select for this Building :

Whether or not the Government could, consistently with former engagements, retain the Building upon its present site, is a question into which we do not consider it our province to enter ; but we have not deemed it right, in regard to this point, to exclude some evidence which appears to deserve your Lordships attention.

Assuming that the present site were deemed unobjectionable, it appears to us that a portion of Hyde Park should not be permanently appropriated, unless to an object of very general interest and advantage.

The British Museum affords undoubtedly insufficient space for its daily increasing collections ; but we believe that the structure in Hyde Park could not be rendered subservient to its relief without extensive alterations, which, while they would impair the effect of the Building, would ill satisfy persons who visited the collections.

The Sculptures of Egypt, of Lycia, and of Nineveh might, it has been said, be advantageously seen under a roof which from its lightness and transparency resembles the open air. The contrast of light and shade is however

deemed advantageous to Sculpture, and the colossal character of these antiquities may be by other persons thought to accord best with massive architecture.

Mr. Hawkins, the head of the department of Antiquities at the British Museum, thinks it objectionable to divide the collection, while he observes that articles of value could not be safely deposited in this Building, unless the precautions resorted to during the time of the exhibition were again adopted.

It is moreover obvious that rooms for the Officers of the department must be provided ; and it is probable that gradually the subdivisions and alterations of the interior would prove the bad economy of appropriating this much admired structure to a purpose for which it was not originally designed.

The force of these observations appears to have been in some measure admitted, even by persons who recommend this appropriation of the Building. It may be seen, for instance, that Mr. Cole contemplates this only as a temporary employment of the Building until some more suitable edifice shall have been constructed for the various Institutions which he thinks it desirable to establish.

Amidst the various schemes that have been proposed, with a view of rendering the Building permanently attractive on its present site, the plan recommended by Sir Joseph Paxton appears to us the most eligible. He submitted a very ingenious plan for converting the Building into a garden, and having estimated the cost of this conversion he states that the entire outlay necessary for the purchase of the Building and its subsequent adaptation would be 150,000*l.* He also estimates the cost of its future maintenance at 12,000*l.* a year. Upon further consideration, however, Sir Joseph Paxton has revised this estimate, and stated the yearly charge for the maintenance of the Fabric and the renewal of the interior decorations required to render it permanently attractive at 20,000*l.* a year.

Even after making these extensive alterations in the present Building, Sir Joseph Paxton has admitted that it will not be in all respects the best adapted to its purpose, and that for the sum of 150,000*l.* he could put up a much finer, a more magnificent, and more appropriate structure than the Exhibition Building.

We are not prepared to say that the sum of 150,000*l.* would cover the cost of adapting the Building to the purposes of a garden. We should think it more prudent to assume 200,000*l.* as the expenditure which would be necessary for these works.

Considering the large annual expenditure which will be required for the maintenance of the gardens when made it appears to us to be inexpedient to commence the work upon a plan admitted to be imperfect.

Should your Lordships determine to recommend to Parliament an annual grant for the maintenance of an ornamental garden under glass within the precincts of the Parks, the plan for such a structure should we think be designed with all the skill which science and experience could direct to this task ; and it would be unfortunate that the Architect should be fettered by the endeavour to employ old materials, and re-adapt former arrangements.

We believe that the remembrance of the late Exhibition would be unfavourable to a new appropriation of the Building, as it would be impossible to reproduce the brilliant effect obtained from the rich collections which were temporarily placed there.

The evidence which we have taken induces us to believe that even if the Building were removed to another site, such, for instance, as Battersea Park, it could not be rendered a self-supporting establishment, unless it were under the management of persons who might conduct it as a commercial speculation.

We do not suppose that the Government would purchase it for such an object, and therefore we have not inquired further into such an appropriation of the Building.

We endeavoured to ascertain whether the Exhibition Building, or any portion of the structure, could be usefully employed at Kew in connexion with the Botanical Gardens.

The Palm house affords space for the exhibition of tropical plants, but a building for the growth of plants requiring shelter and moderate heat is much desired.

In those grounds there exists already an establishment which could be employed in the care of the plants, and it must be admitted that the height and beauty of the transept forming the most striking portion of the Building would be a great ornament to the gardens at Kew.

We inquired therefore of Sir C. Fox the cost of removing the central portion to the extent of thirty-three bays, erecting this central piece together with two new ends, and completing this diminished building as a permanent structure.

From his reply it appears that the price of this purchase and the charge for refixing it would amount to about 80,000*l*. Some additional expense would have to be incurred for warming and ventilating apparatus.

The results of the evidence here collected appear to us to show, that if it be proposed to retain the Building on its present site, the best purpose to which it could be applied would be the formation of an ornamental garden, as suggested by Sir J. Paxton; if it were decided not to retain the Building in Hyde Park, we do not know any other site upon which we can recommend its re-construction at the public expense.

If the expenditure of 80,000*l*. were not deemed an insuperable objection, the principal portion of the Building might be removed to Kew, where its future maintenance as a conservatory, both useful and ornamental, might be provided for with a comparatively small increase to the establishment of the Botanic Gardens.

In the event, however, of such a scheme meeting with the sanction of your Lordships and the approval of Parliament, we believe that it would be the most economical course of proceeding to purchase the entire structure, and again to dispose of those portions which might not be required for the purposes of the Botanical Garden.

We have the honour to be, my Lords,

Your Lordships very humble servants,

SEYMOUR.

W. CUBITT.

JOHN LINDLEY.

The Right Honourable
the Lords Commissioners
of Her Majesty's Treasury.

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MINUTES OF EVIDENCE.

First Day.—Wednesday, 31st December 1851.

Present.—Lord SEYMOUR in the Chair.

Sir WILLIAM CUBITT.

Dr. LINDLEY.

Sir CHARLES FOX was called in, and examined.

Sir Charles Fox.

31st Dec. 1851.

1. (*Chairman.*) [*The general scope and objects of the inquiry were first explained to the witness.*]—I will begin by asking you in the first place; I understand the Exhibition Building is now entirely in your possession; that it no longer belongs to the Royal Commissioners, but is in the possession of the contractors?—It is nominally so. It is not actually so, because the building is not cleared out.

2. But as soon as it is cleared out you consider it is yours, to deal with as you think fit?—Certainly.

3. Are you in a position to be able to state, supposing the Government should desire to take it as it stands at present, what would be the cost of the purchase?—I can tell you as nearly as my memory will serve me. Not knowing what the object of my interview to-day would be, I have not come with any written particulars; and I should think the better way would be to give me a list of the information you require, and I could then give you specific information. It would take a few days to do so. For instance, as to the cost of removal; we have not gone into that as a matter of detail. It would take a few days to do it.

4. Some of the points we have to inquire into would be more a question for us to consider upon an examination of the evidence we obtain than to be answered by yourself completely; for instance, the purposes to which the building could be advantageously applied hereafter?—That is so much a matter of opinion.

5. Exactly. But there are some points on which you could, with a little time, give us a definite and distinct reply; and we thought you might be able now to state them generally?—As far as the cost of the building is concerned, if the Royal Commissioners had purchased it, in conformity with our contract, the total sum would have been about 205,000*l.* The total that we have received from the Commissioners is somewhere about 140,000*l.*; 139,000*l.* odd. This of course will be subject to correction. The Commissioners, if they act upon the minute they sent us some time ago, would have something like 20,000*l.* more to pay to make good to us what the building has actually cost. Then I conclude the Government would have to pay the difference between the sums received from the Commissioners and the amount in our original contract.

6. (*Dr. Lindley.*) That would be 45,000*l.*?—Yes, about that.

7. (*Chairman.*) Then supposing the building could be purchased at an expense of 45,000*l.*, I believe if it were intended to make it a permanent structure it would require some alterations, would it not?—I should advise some alterations in the roof of it, certainly. The glazing was done under such extreme pressure for time, that I should be disposed to reglaze it; and if it were determined to reglaze it, I think in all probability the main gutters of the building ought to be lined with lead or galvanized iron, whichever was considered the best mode; but I have not very carefully considered it.

8. Of course we cannot expect you to go into details, unless there was a purpose immediately of making an offer, and I am not in a position to say that there is?—We shall be happy to go into those details, quite irrespective of the Government making a purchase. It would take two or three of our clerks a week to do it; but then you would have all the information you want.

9. That would certainly be most satisfactory?—Yes; we can give you all the particulars. Any information I could give you now, as to the cost of putting the building in repair, for instance, would be a mere approximation. I should say, that to make it a permanent structure for fifty years, so as to require nothing but ordinary repairs and painting, would cost something like 20,000*l.* or 25,000*l.* Then, if it were converted into a winter garden, there would be large alterations in the floors and galleries, and the timber that would come out of those floorings might be sold for a considerable sum, for a credit against other expenses. Generally, I should say about 20,000*l.* or 25,000*l.* would make it a permanent building; but you should take that as a mere sort of haphazard opinion.

10. But you could in a few days give it more accurately?—In a week, certainly.

11. You think that is an approximation?—Yes.

12. Then suppose that it were wished to take the building—but, to put it in another position, could you say what would be the cost of removing and refixing it? Of course

Sir Charles Fox.

31st Dec. 1851.

the distance to which it would be removed would be one element?—Yes; it would not be much.

13. The question is the cost of taking down and refixing?—If refixed within a few miles it would be merely the question of cartage; but if it were removed to a distant part of the country, then it would be a matter of importance, because there is, I suppose, 12,000 tons weight in it; and if you take the carriage at 1*l.* a ton, it would be 12,000*l.* I should think the cost of removing it, and putting it up again as it stands—

14. (*Sir W. Cubitt.*) With such alterations as experience might render necessary?—Would you put that in that item?

15. (*Chairman.*) Those alterations you would put wherever you make it a permanent structure?—What I want to know is, if you would include the cost of those alterations in the estimate for removing and refixing?

16. No; I wish that separate,—the cost of converting it into a permanent structure, either where it is, or in another place; then, separately, the cost of removing or refixing it. If you removed and refixed it, and also wished to make it a permanent structure, of course the opportunity of doing so would be better given on the refixing?—Undoubtedly; and it is pretty clear that if you were going to pull it down and rebuild it you would make some changes that you would not contemplate if it is to remain where it is. Not many; but I would mention one. I think you would hardly make the whole of the roof of glass. Wherever there is a step of the building I would put a passage, perhaps of four feet in width, so that the workmen could put their apparatus for painting the outside on it; and I think that might be done so as to add to the beauty of the building; that you could do whether you removed it or not. But before I mention the sum, do I understand your Lordship to ask it in this shape; if it were taken down and put up again *as it is*?

17. If it were taken down and put up again as it is, what would be the cost?—I should think, supposing it to go to a distance of half a dozen miles, 35,000*l.* or 40,000*l.*; but of that we will also prepare you an estimate that we will be bound by.

18. (*Dr. Lindley.*) Then that being the cost of its removal as it is, there would be still to add 20,000*l.* or 25,000*l.* to that to make it a permanent building?—I think not, because that includes the cost of taking the roof off, which is included in that 35,000*l.*, so that it will very likely take 5,000*l.* or 6,000*l.* off this item. When we got it down we should have incurred that expense, and should only have to reconstruct it. But I will draw that up in such a shape that you will perfectly understand every item.

19. (*Chairman.*) I will ask you, supposing it were desired to purchase only the transept, and some portion of the building in connexion with the transept, so as not to put up so large a building as now stands, would it be possible to take the transept with a certain portion of the building, and refix that, or are there any reasons why it could not be done?—Oh, no; none.

20. It could be done?—Yes; in any way you like.

21. You think that if, for a winter garden or large greenhouse, it were desired to take the transept and a certain portion of the sides, to harmonize with the main portion, that could be done?—Yes; leaving enough beyond the centre to act as a resistance to the thrust. The building is now 1,848 feet long, and if you desired to cut 500 feet off each end, there would be no difficulty whatever in doing so.

22. (*Dr. Lindley.*) In fact it would be merely doing what was done at first; the parts are all piecemeal?—Yes.

23. (*Sir W. Cubitt.*) The building may be cut off in 24 feet slices?—Exactly.

24. (*Dr. Lindley.*) In the supposed sum of 20,000*l.* or 25,000*l.* required to render it a permanent structure, there would be no alteration made in the sides?—Yes; that would include taking out the wooden sides and putting in glass. I understood that was Lord Seymour's question, to make it a permanent building as a winter garden.

25. The wooden sides would be removed?—Yes. There has been an impression abroad that the foundations of the present building are of a temporary nature, and no doubt it has arisen from this cause, that it was first intended to base the columns upon timber, but it was afterwards considered better to make the foundations of concrete, and carry them down to the gravel, and with the consent of Sir William Cubitt it was done so; and I consider those foundations as lasting as can be.

26. (*Chairman.*) If you build it up in another place, you would adopt the same system of foundations?—That would depend upon the state of the ground; but if it were on similar ground I do not see how you could improve them. You might have to fix them where it would be advisable to put a pile under each column; but in similar circumstances I do not see how you could get a better foundation.

27. If you were to put it in such a situation as Battersen Park, which has been spoken of, which is an alluvial soil, you would be obliged to have some other foundation?—I do not think that follows, because the question then would be what that alluvial soil would bear. If it would bear five tons a foot with safety, the same foundation would do. In the arrangement of the building it was so arranged that you could never have more on the foundations than 2½ tons a superficial foot. I think that was so, Sir William Cubitt?

28. (*Sir W. Cubitt.*) I think it was 2½ tons or nowhere exceeding three?—It was thereabouts.

29. And I made a stipulation that there should not be more than a certain weight on each foundation?—Your Lordship will understand the nature of these foundations with a moment's explanation. Supposing a column, having a base 2 feet by 18 inches, had to bear a certain load, and that it was determined that the bottom of the foundation should never have more weight upon it than $2\frac{1}{2}$ tons for every superficial foot of the bottom of the concrete, the size of the plate at the top being given, and by a simple calculation, dividing the number of tons by $2\frac{1}{2}$, we get the number of superficial feet the bottom of the concrete must have. Then the thickness of the concrete is arrived at in this way:—for every six inches projection beyond the plate you must make it a foot deep, for if you take a thin piece of concrete, and load it heavily, the loaded plate will punch a hole in the concrete. You must let the depth of the concrete be proportionate to the projection beyond the bottom of the column. All you put beyond that is useless, and worse than useless, for when it breaks it breaks in this way [*sketching and explaining*]. Whatever size the plates are at the bottom, the concrete should never project more than six inches for every foot in depth. In this building the concrete foundations vary from 3 feet by 2, up to 8 feet by 6. They are all elliptical, and they vary from 3 feet in depth to 20 feet in depth. That depth was found necessary in one part, which has evidently been the bed of an old brook. So that whatever impression there may have been in people's minds in reference to the foundations being of a temporary character arises from the fact that it was originally intended to make them of timber, but as executed they are permanent. All the important drains through the building too are made of cast-iron. In the contract they were to be of drain tiles; but we considered it safer and better to make them of cast-iron, and they are of cast-iron.

30. (*Dr. Lindley.*) If it should be proposed to remove the building to a place, say Battersea Fields, where you have a very different kind of soil to deal with, I would ask you whether the necessity of making much deeper concrete foundations would not increase materially the cost? Suppose you have $2\frac{1}{2}$ or 3 feet depth in Hyde Park, and it were necessary at Battersea or any other place to have concrete foundations twice as deep, that would affect materially the cost of the operations?—Yes; but the foundations are not very expensive things. Concrete is worth about six shillings per cubic yard; so that you get a great lump for a little money.

31. Still it would increase the cost?—Yes. In Battersea Park you would perhaps put concrete foundations of the proper size, and a hollow brick pier upon that, and put your cast-iron column upon that; because, taking the general level of that park, you would probably have to raise the ground some 6 or 8 or 10 feet in parts; so that the cheapest way would be to build a hollow brick pier on the concrete.

32. All that would add to the cost?—Yes, very much.

33. Suppose the soil were a light sand?—I do not think we could have anything better than a sand foundation, if kept from the wash of water.

34. As, for example, at Kew, where the bed of sand is thick?—It depends entirely upon its nature. If it is sand in which the grains are globular and full of water, then it is a difficult foundation to deal with; but if it is a fine gritty sand, as that of the sea shore, it forms an excellent foundation.

35. An angular sharp sand?—Yes.

36. (*Sir W. Cubitt.*) There is nothing better than sand for bearing weight?—We do not build upon the sand, but in it. If you go a little way into the sand it is a very good foundation. But the question you put would be as to a quicksand.

37. (*Dr. Lindley.*) I ask, if you take the building anywhere where you would have to carry the foundations deeper than in Hyde Park, then the cost must be increased, more or less?—No doubt of it. You must either carry them deeper, or increase the size of the base.

38. (*Sir W. Cubitt.*) It might be the cheapest way to set them on a platform?—I was just going to explain that. In some works I executed at Renfrew on the banks of the Clyde I loaded a cast-iron plate, four feet square, and if anything beyond ten hundred-weight to the foot were placed upon it it would sink into the ground; so that, instead of being able to take two tons and a half to the foot, it would only take one fifth of that weight. If you take timber platforms below the level of the water, then they become exceedingly durable. If you have a bad material then you would have to go a greater depth; and if you do not you must spend a larger sum in increasing the base of each foundation. You get the additional cost either one way or the other; but generally the wide base is the better mode of the two.

39. (*Chairman.*) Have you considered at all, if it were refixed, with the view of making it a winter garden, what would be the cost of the pipes for heating it?—No, I have not. I have not gone into that subject. I have had several conversations with Sir Joseph Paxton upon it, but never with anything like a definite result; but it would be very easy to go into it.

40. It is a subject Sir Joseph Paxton is more likely to have considered himself?—Yes; he has more statistics to govern him than we have ourselves.

41. (*Dr. Lindley.*) Would you consider the roof of the building, if it were constructed again under more favourable circumstances, would be as waterproof as any roof?—Perfectly. Four or five months ago we finished the roof of the Oxford station in the very same manner, indeed with the same tools, and it is perfectly water-tight.

Sir Charles Fox.

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Sir Charles Fox.

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42. Was it not originally intended that the glass should be slid into grooves without putty?—It was intended to putty them, but they were slid in without putty, and puttied afterwards, which I should never do again. It was done, in fact, to save time. We had a million feet of glass to put in, in a very unfavourable time of the year, and under very unhappy circumstances, so far as the men were concerned, though they were getting rich all the time, for they never had a better job.

43. Then you would putty them at the time?—Decidedly I would.

44. (*Chairman.*) When you built that station at Oxford, was that puttied?—Yes; and on our temporary offices in Hyde Park the first piece of roof put up there was carefully puttied. It was our drawing office, and we never had a drop of rain through.

45. (*Sir W. Cubitt.*) It was used for various purposes; drawings, papers, and books were continually open to the glass, and it was perfectly dry?—There was Mr. Digby Wyatt's office and an adjoining office, and they never had a drop of wet. In fact I can hardly conceive a system of roofing that is so easy to make water-tight as that. You have a single pane of glass in each opening, and that pane of glass is in a groove at the top, in grooves at the two sides, and lies on the edge of the gutter, bedded in putty at the bottom. There is no excuse for not making it water-tight, if you have a fair length of time for doing it in.

46. (*Dr. Lindley.*) In case of accidents to those panes, is there no difficulty in getting at the squares to repair it?—None.

47. You seem to have found none?—No; there is none at all. We have a little board that runs from ridge to ridge, with a roller at each end, and the men put their feet in the gutters, and push themselves backwards. Besides that, in many instances I have men who can run along the ridges. The foreman of the glaziers would run all over the place upon the ridges.

48. (*Chairman.*) In the event of the roof being reglazed, as you proposed, should you use glass of the present weight, or stronger?—The same weight.

49. Per square foot?—Yes; and for this reason, during the last twelve years I have used in railway stations and in Her Majesty's dockyards I think upwards of fifty acres of such glass, and never had any trouble with it.

50. (*Dr. Lindley.*) It is sixteen ounce glass, is it not?—We have used none heavier. Yes; the great roof at Woolwich was specially ordered to be twenty-one ounces; but in every other case it has been thirteen, fifteen, or sixteen.

51. Sixteen is sufficient; this is sixteen ounces?—Yes; sixteen ounce glass. There was a report while we were carrying on the works that we were using glass too light, and Lord Granville spoke to me on the subject, and I called upon him to instruct Mr. Digby Wyatt to take any box of glass he could find and have it weighed; and the report was, that the average was more than sixteen ounces. One pane in one box was about an ounce under weight. A great many unkind things were said of us while we were going on with the work; but the glass is really sixteen ounce glass, or rather more; and I have used it all over the kingdom. We put up a very extensive roof at Perth, and another at Edinburgh, another at Carlisle, and another at Chester; indeed all over the kingdom.

52. Have you had an opportunity of judging of the effect of a heavy hailstorm on that glass? Have any hail storms of any consequence occurred where those roofs have been constructed?—Oh yes.

53. Because, you know, we had one in London, a few years ago, which broke the skylights in all directions?—That arose in a great measure from this fact, that skylights are glazed in several lengths, and if you have two panes, one lying over the other, the bottom edge cannot be protected, and if a hailstone touches it it will break; but if it is lying on a frame all round, bedded in putty, it is not easy to break it. If you do not take two matters into consideration, one, that each pane should bear all round, and the other that it should never be beyond a certain width, you can form no opinion at all. If you took a pane of sixteen ounce glass of double this width, a hailstone would break it, but it would not produce any impression at the present width. The strength therefore of glass, they never think about its width; but we take care to keep the width of the glass within a safe limit. In this case every pane is ten inches wide, and the widest we have in the Government works is eleven and a half, of the same thickness. Now Pembroke is a very exposed situation; the gales from the Atlantic sweep right up through the harbour at Milford Haven into the dockyard. There are three roofs there for building first-class vessels, which have been finished six or seven years. They are glazed with thirteen ounce glass, and there has not been the slightest complaint about it. I have never seen the use of going to extra expense, except where it is desirable to make accident impossible. The glass of the Exhibition Building is of a size there would be no difficulty in getting rid of; we use immense quantities of it. It might remain in stock a few years, but it is a size that is sure to be used. It is 49 inches by 10.

54. (*Chairman.*) I think, if I gave you a copy of these different points of inquiry, you could send us an answer when the calculations have been made, and that would take in most of the information that we could obtain from you upon the subject?—I think it would be necessary to give us a few more conditions than those your Lordship has

stated. The "cost of removal to some other spot" is very indefinite, because the foundations may cost one sum or another. *Sir Charles Fox.*

55. Say, "the cost of removing and refixing it, supposing you had as good a foundation as you have now?"—That will do. *31st Dec. 1851.*

56. Any extra must depend upon the nature of the soil, as the cost of removing would depend upon the distance. But perhaps you could give us a notion, the same as I had for the removal of the marble arch, when I asked Mr. Cubitt to tell me how much it would be for each mile I moved it. You could tell me that perhaps?—Oh yes; we could tell you that. We must have the total estimated weight; and then it will cost you for the additional distance (I am assuming now that it would be within a carting distance) ninepence a ton a mile. There is no difficulty in giving you all this.

57. For instance, if it were thought desirable to put it up at Kew as a greenhouse, would you call that within a carting distance?—Yes. Supposing you adopted any other course, you could only send it by railway, and then you would have to cart it to and from the railway.

58. Or by the river?—It would have to be carted at both ends, either way; so that when it was on the cart it would be cheaper to send it on at once.

59. (*Dr. Lindley.*) Even though there is a turnpike at Kew Bridge, which is a heavy one?—Yes. You save the two entire transshipments. If you put a specific question, how much it would cost to remove it to Kew, I could tell you. Your Lordship has got over the difficulty about foundations by saying, "if the foundations are as good as at Hyde Park," which is almost as much as saying, as good as they can be.

60. There cannot be found better, you think?—Yes. All the circumstances there were as good as they could be.

61. (*Chairman.*) There is no reason to think they would be worse at Kew?—I think that is very likely; but at Kew you might have to raise it. Hyde Park was a wonderfully advantageous site, taking the occasion and everything into account.

62. (*Dr. Lindley.*) I do not know whether I may ask a question on this point,—“the probable expenditure that might be required for its maintenance;” but a great part of that would be the cost of maintaining it in a state of repair, and in the absence of that information this inquiry which we are to make would be very imperfect. (*Chairman.*) Yes, probably you could tell us that. Supposing the roof to be made as you have explained, of a permanent character, so as to stand permanently, then there would be no other expense for fifty years,—I think that was the expression you used,—except painting and other small repairs?—There are always small repairs; painting, and occasionally glass broken.

63. There must be, occasionally, in such an extent of glass?—But I consider the quantity of glass likely to be broken, where all is bedded in a frame of wood, would be very small. In most of the works I have executed we have been careful to bed the glass in metallic bars; but from what I have seen of late years I would never use metallic bars where I could avoid it. We have thrown away many thousands of pounds in using iron and sometimes even copper, but we never can keep the putty in good order. The wrought iron gets rusted through, and keeps the glass of a bad colour, and in all the works I execute in future I do not mean to use it again. I have got an order for a roof far beyond anything that has been done in the world, 210 feet in one span, and 1,000 feet long, and the whole of the glazing is to be done in wood; it is preferred to have it in wood. It is for the Birmingham station for the London and North-western railway company. There has been a general impression that the Exhibition was not a permanent building, through using wooden sashbars.

64. (*Dr. Lindley.*) No doubt wood, properly seasoned, is preferable to metal?—And there is a greater saving, as far as expense is concerned.

65. (*Sir W. Cubitt.*) A far greater difficulty, and an enormous expense?—Before we began the work in Hyde Park I went down with Sir Joseph Paxton to Chatsworth, to look at the condition of the sashbars in the great conservatory and other buildings there. Some have been there 118 years, and they were as sound as the first day they were put in. I looked very carefully into them.

(*Dr. Lindley.*) I think, my Lord, you have somewhere in this office a report from myself and others, in 1836, on the hot-houses at Kew. I do not know the age of them, or of what timber they were, but they were the oldest of the kind, and as sound I believe as the day they were first put together; there was not the least symptom of decay. A great deal would depend on the way in which the interior of the building was heated. A greenhouse is just the kind of place to preserve wood.

(*The Witness.*) But the conservatory at Chatsworth is of a high temperature, and the sashes are all wood.

66. (*Dr. Lindley.*) But is there not considerable damp?—When I was down we had the head gardener out, and all the books connected with it; and we found that the total expense of repairs, exclusive of painting, did not amount to 100*l.*, and it has been up thirteen years.

67. That is not, properly speaking, a stove; it is more in the nature of a green-house; it is not very damp, and it is the dampness that destroys timber?—But here, I presume, you would take every means of avoiding it, if it were intended for a comfortable promenade?

(*The Chairman.*) Yes.

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68. (*Sir W. Cubitt.*) For the cost of removal you might say, "Not less than three or more than ten miles;" would that do?—Yes; then we would give you the price per mile.

69. (*The Chairman.*) I will have these questions sent to you, with the alterations you have suggested to make them clearer?—Perhaps there would be no objection, if anything else should suggest itself to the minds of any one of you, to its being also sent to me?

70. Not the least. We want to lay the information clearly before the Treasury?—But supposing any idea should strike Sir William Cubitt or Dr. Lindley, would there be any objection to their asking me the question, so that you may have all the information before you at your next meeting?

71. Not the least; quite the contrary?—I shall have to go to Ireland on Sunday night, and shall be back the following Friday or Saturday, and by that time all the information will be ready. If that will not be soon enough, Mr. Henderson shall come up next week. It is rather a heavy thing, and it would be desirable to do it well.

72. Decidedly, it would be desirable to do it well, as it will guide the Treasury very much in any opinion they may form?—As far as I am concerned, I am really much puzzled to know whether to wish the building to stay or to go; I mean as far as my pecuniary interests are concerned. If you consult my feelings, I should say let it remain where it is.

73. Supposing the Treasury should be desirous of taking a portion of it, with a view of making a green-house, for instance, at Kew; your calculations will enable us to say at what cost that could be attained, because it would be only deducting so many slices of twenty-four feet each?—Yes. The transept would cost rather more than the other part.

74. Of course?—Then the question should be put, first, what would be the cost of removing it as a whole, and out of that whole what would be the additional cost of the transept.

75. (*Dr. Lindley.*) There is a certain amount of side squares necessary to keep the transept steady, as a minimum below which you cannot go, as there is a certain quantity of lateral force. If the building consists of no more than is necessary for the maintenance of the transept, you may divide it there, and the rest can be easily estimated?—That would give what his Lordship wants to know.

76. It is clear there would be a *pro rata* increase beyond that, and you could not go below the minimum?—That is quite clear.

77. (*Chairman.*) If the Government did not like to embark in taking the whole, they would know at what cost they could procure that portion, and keep it, at Kew, say, for a green-house?—If they took a portion only, they would have to pay rather more, because they leave the other pieces incomplete. It would not be quite at a *pro rata* price, because they would leave us with a portion of the building, with the four ends missing. You would take the two ends which exist, and put them up to the transept, leaving us two pieces, with four ends wanting. But we will take care to consider that.

78. (*Chairman.*) Unless Sir William Cubitt has any other question to ask, I do not think there is any more information you can give us now?—I began, in answering your first question, by saying that I concluded the Government would get the building at the same price as the Commissioners would have to pay if they kept to the terms of our original contract, and determined to purchase.

79. (*Sir W. Cubitt.*) But the agreement was in the alternative; that was a part of the contract?—I said, if they had so decided. They were not bound to purchase, of course. Nothing could be clearer than the contract; there was a renting price and a purchasing price. The observation I am going to make is with a view to show that we have every disposition to stick to the contract. It is by no means beneficial to us for the Commissioners to pay us the prime cost, and leave us with the building to dispose of as we can. It leaves the very small difference between 45,000*l.* and the value of the materials, the materials being valued, in the estimate we have sent in to the Commissioners, at 33,250*l.*, I think.

80. (*Sir W. Cubitt.*) I think you estimated them in the paper I had to investigate at 30,250*l.*?—No; it is 33,250*l.* for all the materials, assuming the building was taken down. Then the difference between that and 45,000*l.* is only about 12,000*l.*, so that it leaves us really with only 12,000*l.* in our pockets.

81. That is, too, if the Commissioners pay you a certain further sum of money?—Exactly; I premise that. Suppose the Commissioners to have done that, if the Crown purchase it the total sum that will ever go into Fox and Henderson and Co's pockets will be 12,000*l.*, so that it is just the question whether the Government would not be disposed to pay rather a higher price, so as to give us a fair tradesman's profit. We shall never ask it, because we feel that in dealing with the Government we are dealing with the Royal Commissioners.

82. (*Chairman.*) The first question I asked you was whether you considered yourselves at liberty to deal with it as your own property, without reference to the Royal Commissioners?—Certainly we are.

83. Then it would be best to state upon what terms you are prepared to deal with it.

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(Sir W. Cubitt.) We have no consideration about the Royal Commissioners at all, and you had better not consider them in answering the question Lord Seymour asked about the Government.

84. (Chairman.) I think it would be better to keep the thing separately. We are not in the least acting with the Royal Commissioners; we are a separate Commission; and as the Royal Commissioners have washed their hands of it, as we may say, the question is now whether we shall deal with it or not?—Still it would be hardly fair for us, having made such a contract, and feeling that the Government could buy it through the Commissioners if they chose to go beyond the contract price, if the Government found, for instance, that we were indisposed to sell it without a profit of say 50,000*l.*, nothing would be easier than for the Government to say to the Royal Commissioners, "You can buy this under the contract." I am not putting it as a question of legal right at all; I am treating it merely as a question of what gentlemen ought to feel about it. I cannot help feeling that we ought to let the Government buy that building for 205,000*l.*, because the Commissioners have a right to buy it at that price; but if they had determined to do so they would possibly have given us something beyond it, to make up a fair tradesman's price. Supposing we took a profit of twelve and a half per cent., instead of being 12,000*l.* it would increase it by an additional 12,000*l.*, and I do not think anybody under the circumstances ought to grudge it; but it is a question whether we ought to ask it or not.

85. It would be much better, when you give the price, to put down the price at which you would be prepared to sell it to the Government, without leaving anything to their generosity hereafter?—Very well. I wanted just to explain that.

86. You had better state what you would be prepared, considering all the circumstances, really to sell it to the Government?

(Sir W. Cubitt.) And the lowest sum you could or would take for it?—Very well; that will put it in a definite way. We have had one or two bonâ fide offers; we have had others; but two of them I think are very likely to be carried out; but I told them all that we were bound to wait to know what the Government meant to do with it, and that if the Government meant to buy it they would take it at our contract price, probably; therefore, without going into any question with the other parties, I have told them nothing. There is one party I think exceedingly like to come to terms; but I have determined to say nothing to anybody, yea or nay, until the Government has decided.

87. (Chairman.) You had better put it at such a price that there can be no claim for coming afterwards, upon the ground of generosity?—I would put it on the face of our tender.

88. We would rather have a distinct price?—Very well; it shall be so. Then perhaps I may withdraw that first answer.

89. When the copy of your evidence is sent to you, you may correct it; or, if you find any difficulty, we may ask the question again here?—You may think it strange, I dare say, that I should not have gone into these matters before; but we have felt all through that we have had more to do than we could really well do; we have had nearly a year of our time absorbed in the Exhibition. I explained to Sir William Cubitt the other day, that if I had known what you would want I could have been prepared; but as that could not be, my only plan was to meet you here to-day; and now that I know what is required, we will prepare it. The subject has really never been well considered by us. Perhaps I could have these questions to-morrow morning.

90. Yes.—Then I will set our people to work, and get it in a proper way before I go to Ireland, and leave them to work up the details in my absence.

The witness withdrew.

The witness afterwards delivered in the following statements.

EXHIBITION BUILDING—HYDE PARK.

The points to which the attention of the Commission is directed are:—

- | | |
|--|---|
| I.—The price at which the Government could purchase the building? | £65,834 7 <i>s.</i> 11 <i>d.</i> , to which will be added the expense of maintenance and interest on the difference between the amounts received and the total price to the date of purchase; but of the above sum we expect the Royal Commissioners will pay us 20,912 <i>l.</i> 4 <i>s.</i> 4 <i>d.</i> |
| II.—The cost at which it could be converted into a permanent structure? | £26,000. |
| III.—The cost of removing and refixing, assuming the position to be attended with no unfavourable circumstances? | £61,500. |
| IV.—The probable expenditure which would be required for keeping it in repair? | £5,000 a year, including the cost of painting internally and externally every four years. |

FOX, HENDERSON, AND CO.
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EXHIBITION BUILDING—HYDE PARK.

The expense of removing the central piece, to the extent of thirty-three bays in all, reinstating the ground, and erecting this central piece, together with two new sets of end facework and the transept complete, including the improvements necessary to convert this building into a permanent structure, and the painting complete, assuming that the position in which it is fixed is not attended with any unfavourable circumstances, will be

	£32,400	0	0
Two new ends	5,500	0	0
Value of materials	36,154	7	11
20 per cent. depreciation on 29,680 <i>l.</i> , the value of materials in the two ends	5,936	0	0
	£79,990	7	11

The expense of removing two end pieces to the extent of forty bays in all, reinstating the ground, leaving the two sets of end facework to be applied to the central portion, providing four new sets of end facework for the end pieces, and erecting them complete as two separate structures, assuming that the positions in which they are fixed are not attended with any unfavourable circumstances, including the improvements necessary to convert these two buildings into permanent structures, and the painting complete, will be

	£42,000	0	0
Value of materials	29,680	0	0
20 per cent. depreciation on 36,154 <i>l.</i> 7 <i>s.</i> 11 <i>d.</i> , the value of materials in the centre piece	7,230	17	7
	£78,910	17	7

FOX, HENDERSON, AND CO.
28th January 1852.

Second Day.—Thursday, 22d January 1852.

Present.—Lord SEYMOUR in the Chair.

Sir WILLIAM CUBITT.

Dr. LINDLEY.

Sir Charles Fox.

22d Jan. 1852.

Sir CHARLES FOX was called in, and further examined.

91. (*Chairman.*) You have sent us in this list [*referring to a paper*] answers to the different questions proposed at our last meeting, and the answer to the first question, namely, the price at which the Government could purchase the Exhibition Building, appears to be 65,834*l.*, to which will be added the expense of maintenance and interest on the difference between the amounts received and the total price to the date of the purchase?—Yes; by maintenance we mean just the cost of keeping it up. By the contract we have the right to set to and pull it down.

92. For any time you may have to keep it up?—Yes.

93. (*Sir W. Cubitt.*) From the 1st of December?—Yes; the interest is of this kind: we have received from the Commissioners a certain sum; if Government buy it they may do so at a future period, and to that time we may have been out of a balance, and we think it would be only fair to pay us interest on that balance. The information is not so ample as, I think, your Lordship intended it to be, but I understood the questions would have been put in a different form. These are precisely the questions that were read to me when I attended the previous meeting.

94. (*Chairman.*) I think that these answers will suit our purpose very well. The next question is, the cost at which it could be converted into a permanent structure, and the answer to that is 26,000*l.*; is that as it now stands?—Yes.

95. But supposing the Government wished to incur the cost of removing and refixing it, you would charge for that 61,500*l.*?—Yes.

96. Would that include the 26,000*l.* for converting it into a permanent structure?—Certainly it would.

97. Therefore if we adopt the third, the cost of removal 61,500*l.*, we include the 26,000*l.* in that?—Certainly. In the answer to the second question there would be the question of taking down, unglazing, and reglazing the roof; and if we remove it we should do that. But the question, I think, that you want answered is this, whether for those two sums, the first and the third, you will get a similar building in another place.

The Chairman.—Yes.

98. (*Sir W. Cubitt.*) If the building is to be removed, we may understand that it can be bought for 65,800*l.*, and for 61,000*l.* more it may be removed anywhere as a permanent building?—61,000*l.* more will place it on another site, as a permanent building; just as if you kept it on the present site at 65,800*l.*

99. (*Chairman.*) Then 126,000*l.* will remove it and fix it up elsewhere in a permanent condition?—Certainly.

100. (*Dr. Lindley.*) As it is now?—Yes, but improved and made a permanent building; with a roof on the same principle. I have got a detailed estimate of everything contemplated here [*referring to papers*]. We have investigated the matter in a very elaborate manner. The fourth item of 5,000*l.* a year for keeping it in repair, including painting the exterior and interior every four years.

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101. (*Chairman.*) That is the maintenance of the building, without reference to any purpose to which it might be applied?—Yes.

102. (*Sir W. Cubitt.*) Keeping it wind-tight and water-tight, and in all respects in good condition, for 5,000*l.* a year?—Yes. It is 500*l.* a year less than we named when we were asked to name it to Parliament last year. We have gone more carefully into it. On the previous occasion your Lordship asked a question as to the expense of removing the two end pieces or the centre piece, but as that was not included in the list of questions sent to us we did not consider it right to give the answer on that piece of paper; but if your Lordship wishes for the answer, I can give it.

103. (*Chairman.*) I should like to ask you that. Suppose the Government were to purchase the transept and a sufficiency of the sides to accommodate itself to the transept, that is, to support it and to look well enough, what would the cost be?—I have got it here, but I have got it in a different order. [*Reading.*] “Expense of removing two end pieces to the extent of forty-four bays in all, twenty-four feet each, reinstating the ground, leaving the two sets of end facework to be applied to the centre portion, providing four sets of end facework and erecting complete as separate structures, assuming the positions in which they are fixed not to be attended with any unfavourable circumstances, and including the expense of converting them into permanent structures, 42,000*l.*”

104. (*Sir W. Cubitt.*) That is, taking the two ends and leaving the middle as it stands?—Yes; refixing the ends to the portion you have left in the centre, and supplying four new ends for the other two pieces; assuming you fix each of them in some separate place.

Chairman.—I did not think of that so much.

105. (*Sir W. Cubitt.*) Lord Seymour's question was as to leaving a sufficiency to connect with the transept?—I have got that besides. We have divided the building into three parts, and I can give you the centre portion by itself, and the two ends. I did not consider you would be likely to leave the two ends isolated. We have given, as the price at which the parts could be fixed somewhere else, 42,000*l.*

Dr. Lindley.—That is about 1,000*l.* a bay.

106. (*Chairman.*) You have perhaps gone on the assumption that has been mentioned, that the end pieces might be removed to Dublin or elsewhere?—We have assumed within a reasonable distance. [*Reading.*] “Expense of removing the central piece to the extent of thirty-three bays in all, reinstating the ground, and erecting the central piece, together with the two sets of end facework described above, and the transept complete, including the improvements necessary to convert it into a permanent structure, and painting complete, assuming the position in which it is fixed not to be attended with any unfavourable circumstances, 32,400*l.*”

107. (*Dr. Lindley.*) That is the transept, and so much of the ends as are necessary to support it?—Yes; a total length of thirty-three bays of twenty-four feet each.

108. (*Chairman.*) Supposing the Government wished to take the centre or transept, and so much as you have there calculated, that would be 32,400*l.*?—Yes.

109. Supposing they did that, without encumbering themselves with the two ends, it would be equally 32,400*l.*, if I understand you? You have given me two calculations; one, the cost of the centre and the ends, that is, the whole; and the other, the centre only. Now supposing the Government wished to deal with the centre, but not to take charge of the ends, would you be prepared to part with the centre without making any stipulation above that 32,400*l.* with regard to the ends?

110. (*Dr. Lindley.*) That is, to form a building of this kind [*sketching*], if I understand Lord Seymour?—Yes, I understand.

111. (*Sir W. Cubitt.*) You taking the responsibility of what you would do with the ends, removing the centre within a reasonable distance, would your estimate be the same?—No; we should want something more than 32,000*l.*, because it would leave two pieces without ends.

112. (*Chairman.*) Supposing the Government were prepared to deal with that centre, and the necessary portion of the ends to go with the centre, as you have calculated, without taking any more, without meddling with the two ends, what would the cost be?—I would rather take a little time to think of that. I would rather have that question put and answered in writing.

113. (*Sir W. Cubitt.*) In your statement here of the two ends and the middle separately you have estimated for four new ends?—Yes; on his Lordship's supposition we should have two isolated pieces standing without ends, or we must make two ends for the centre which we sold, which would come to the same thing.

[Lord Seymour here left the meeting.]

114. (*Dr. Lindley.*) We have got answers to two points beyond the four which Lord Seymour put in his letter. We have got six answers now. You say the cost of the removal of forty-four bays, twenty-two each way, would be 42,000*l.*?—That is the cost of removing and re-erecting; the cost of purchasing is included in that sum of 65,800*l.*, the first item, which would have to be divided.

115. But then the 32,400*l.* that you have named as the sum for which the transept and thirty bays might be removed is on the supposition that the whole building is taken in some form or other, and therefore you would require time to consider the cost of taking

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the transept, with so much of the adjoining part as would be sufficient to form a good building, you having the residue thrown on your hands?—Yes.

116. That you cannot now give us an answer to?—No, it would involve taking those two ends away, even if the centre only were removed. One cannot conceive two isolated pieces to remain there.

117. No; that might be assumed?—Then the cost of purchasing the central portion must be something more. It would put us to a great many sources of expense.

118. (*Dr. Lindley.*) Lord Seymour is anxious to have an answer to this particular question.

119. (*Sir W. Cubitt.*) It is the centre and so much of the ends as might be necessary, and I think you have stated that which is a very good proportion in length.

120. (*Dr. Lindley.*) Fifteen bays on each side, 15 times 24, that is equal to 360 feet.

(*The Witness.*) It is 360 feet each way, besides the width of the transept. It takes 792 feet away from the entire building, and leaves 1,056 feet.

121. (*Dr. Lindley.*) Now was there any other point Lord Seymour appeared to raise when you were here before?—I did not take any very careful note of the questions, because his Lordship said he would amplify those questions before they were sent to me, so as to put them in the form in which he desired them to be. His Lordship's attention may have been called from it, and a simple copy of the questions as they were first put came into our possession, and so I have answered them.

122. What is meant by the term "unfavourable circumstances;" does that refer to distance of conveyance or difficulty of foundation?—To both.

123. It refers to both?—Yes.

124. (*Sir W. Cubitt.*) You mean, to put it up in any place which in point of situation is as good as the present one?—Yes.

125. (*Dr. Lindley.*) At a moderate distance?—Yes, at such a distance as might be considered desirable for carting.

126. (*Sir W. Cubitt.*) We talked of a distance about Kew?—Yes, that was contemplated as about a carting distance.

127. And we decided that that was better as a carting distance than by any other mode, including the tollbar?—Yes; but the great question in the mind of the public in reference to the building appears to be this, that the roof cannot be made water-tight; but there really is no difficulty about it.

128. (*Dr. Lindley.*) What was your seventh point; there is a seventh calculation there of some kind, I see. We have exhausted six of them?—[*Reading.*] "If the centre building last described be allowed to remain where it is, the expense of taking down and refixing would be saved, and this will reduce the amount for making good the central piece of thirty-three bays, including improvements, and painting, to 14,750*l.*"

129. Those are copies of papers in your office; have you any objection to put them in?—There is a great deal here that would be of no use to you; but if you want any part of them you can have those facts copied that you may require. You will see that we have gone into it with very great care [*referring to his papers*].

130. There is a considerable quantity of work in the Exhibition Building which, if I remember right, was put next to Rotten Row, after the building itself was designed; all the space where the machinery was?—There were several pieces; three pieces.

131. All that is included, I suppose, in the estimates before us. That is, you estimate the cost of removing the whole as it now is, with all that part in addition to the original design?—Yes.

132. But as that is rather an excrescence, is there any means of ascertaining the difference of cost, supposing that portion were cut off?—There is only one part that can be considered as excrescence, and that is the machinery shop. I will explain to you how that was.

[*The witness made a sketch, showing that the additions to the north of the building were chiefly such as enabled the open courts to be left.*]

The principle on which we arrive at the cost of removal is this: our contract for the cost of the building, as originally contemplated, was 150,000*l.* Then any additional works were to be done according to a schedule attached to the contract. That was priced by us at use and waste prices; but in the event of a purchase it was agreed that those additional works should be increased in price in the proportion that 79,800*l.* bears to 150,000*l.*, the purchasing price.

133. (*Sir W. Cubitt.*) It appeared to be an object with Lord Seymour to know what the Government could get the transept and that middle piece for, and set it up in another place?—Rejecting the ends; that was never put to me in words. His Lordship spoke of two or three different places, and I concluded that the centre might be taken to one place and the other parts to another. I did not consider the question to apply to taking the centre only; but I shall be happy to give you any information you require; but to give you all *this* would confuse you.

134. The great thing is for us to have enough information to enable Lord Seymour, on behalf of the Government, to know, if he has any particular plan to recommend, at what cost it might be effected. I believe Lord Seymour wants to know at what price the Government can have the centre with the fifteen bays at each end,—the transept and two new ends,—put up somewhere else, leaving you to do the best you can with the

pieces?—It was not so expressed in words when I was here the other day; and I understood the point of the questions to mean, how much could it be taken for in separate pieces, one being placed *here*, one *there*, and one in another place. I did not understand it as you have now put it. However, I can easily get you the amount, and I will do so immediately. I will bring it you, if you please, in half an hour.

135. (*Dr. Lindley.*) If you will we shall be much obliged to you.

The witness withdrew.

CHARLES WENTWORTH DILKE Esquire was called in, and examined.

Sir Charles Fox.

22d Jan. 1852.

C. W. Dilke, Esq.

136. (*Dr. Lindley.*) The memorandum you have addressed to the Commissioners is so full as to the purposes to which you think the Exhibition Building is applicable, that I think it leaves us no questions to ask you. Have you anything more to add to it?—I think not, unless you wish to have any corroborative facts.

[*A memorandum previously addressed by this witness to the Commissioners will be found at the end of his evidence.*]

137. (*Sir W. Cubitt.*) I believe all your propositions are based upon the assumption that the building remains where it is?—Precisely.

138. Then how will the facts be, supposing it is put in any other spot? Supposing this building is removed and the ground reinstated, according to the Royal Commissioners contract, do you think there is another place suitable for it, or what is the next most suitable position adaptable to all these purposes?—I doubt whether for all the purposes suggested by me it would be so convenient in reference to the public if it were put in any other spot. Battersea is the only other situation that strikes me.

139. That is certainly the next best, if not the best, because it has some advantages which Hyde Park has not, to the great mass of the people?—On the other hand, the present situation has an advantage I have not stated in the memorandum I sent in, which, I believe, will be undoubted. The National Gallery, it is decided I believe, is to be removed into that immediate neighbourhood.

140. That struck me too; but I thought, perhaps, a diversion of numbers might be desirable?—No; I think not. The numbers that now visit the National Gallery are not so great as to make it necessary. I have now better authority than I had when I wrote my memorandum for saying with certainty that the British Museum must be enlarged. At this moment, I believe I may say, they have no room for their collection of animals in spirits, which is now deposited, in one of what we should ordinarily call cellars, under the libraries. They have also the largest osteological collection in the world, which is also in the cellars, under the Grenville Library; and I may state that in the Egyptian room,—the room in which the Egyptian marbles are placed,—I counted yesterday six hundred and odd articles in a room about one hundred and thirty-five feet by forty-five; some of those objects being, as you are aware, of very large size; two or three of them of nine feet long by four feet wide.

141. There is one thing in favour of Battersea, it would be very good for all large objects coming from foreign countries, of whatever bulk and weight; they might float up there?—That is unquestionably an advantage. In reference to the Lycian marbles, to which I allude in my memorandum, they have a room at the Museum in which there are two tombs, one is about fourteen feet high and the other twenty-four feet high, and each of those is less than six feet from the wall at one side, so that by no possibility can you see the sculptures at the top on the side next the wall. You must go into that narrow space and look up twenty-four feet; and the tomb has a rounded roof. Then, in the antechamber to the Parthenon Room, a room of about thirty-six feet by thirty-six, there are two pediments, with figures, about 110 separate objects, parts of friezes, &c., besides between 90 and 100 feet of a large connected frieze.

142. There is no doubt that a building of this kind, well prepared and well roofed, would be admirably adapted for such purposes?—Then, in reference to the minerals, I would note that the cases containing them are rarely, if ever, more than three feet apart, making it very difficult indeed, if not impossible, for two people to see the opposite cases at the same time. I do not know if anybody has stated it as part of their evidence; but the building in Hyde Park unquestionably proved a very dry building. I presume the reason to be assigned would be that the large amount of glass caused a very rapid evaporation, and the condensation ran off in the small gutters, instead of dripping into the building. When the collection was first brought together, the owners of the Sheffield goods considered that they would be very much tarnished; but I believe experience proved that they were never affected by damp, until one singularly foggy day, just at the close of the Exhibition, when they were much tarnished.

143. That is very true, certainly, in many respects. You do not allude to leakages?—No, of course.

144. It is very dry, and we never could have built a brick building so dry; never?—Impossible in the time.

145. Can you inform us at all as to the feeling of the parties in the neighbourhood who expressed themselves so averse to its being brought there?—I believe, if anything, a change has come over them in favour of it; but I do not think there is any material difference. I have heard that two of the parties would rather like the building as a

C. W. Dilke, Esq. winter promenade. The feeling of the district generally is certainly in favour of its being kept up.

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146. I mentioned it to a party living opposite, in one of the best houses there, as soon as this Commission was appointed. I said, "There is a Commission appointed, and whether the building is to be kept there or not, I would advise you and your friends, who were adverse to its being there, if you are still adverse to it, to meet and consult, and do not be taken by surprise, but send a memorial on the subject to the Office of Works, if you so please." And I do not learn that anything of the kind has been sent?—I have not heard that any movement has taken place.

147. (*Dr. Lindley*.) You suggest that in constructing a new roof iron should be substituted for the main gutters?—Yes.

(*Sir W. Cubitt*.) Metal at all events, and it would be iron, I dare say; galvanized iron.

148. (*Dr. Lindley*.) You do not include however, in that suggestion, iron sashbars?—No, only the main gutters; not even the Paxton gutters; I mean for instance the seventy-two feet gutters that go across the nave.

149. Then it is only the main nave gutters that are included in that suggestion?—Yes, the main gutters that run across each of the lines of the building.

150. All main gutters?—Yes, the transverse gutters.

151. (*Sir W. Cubitt*.) The Paxton gutters are longitudinal?—Yes. As to the inconvenience of the present British Museum, I have twice within the last fortnight been to the reading room; on one occasion I had to stand a quarter of an hour before I could get a seat; and on the other occasion, the book I had gone to consult requiring only a few minutes examination, I took the seat of a gentleman who had gone off to consult the catalogue. In one room on Tuesday last there were sixty-five people at three o'clock, all occupied reading.

152. (*Dr. Lindley*.) You have no idea, I presume, of the cost of maintaining this building on the plan you propose, supposing it were adopted?—No, I have not considered it. I would draw your attention to the word "extra keepers" in my memorandum, because if these collections were brought from the British Museum it would not be fair to charge this building with the assistants necessary for those things that were brought from the Museum.

153. (*Sir W. Cubitt*.) Do you think if it were resolved upon to remove the building, and re-erect it, that still it might be done for less money than building an additional British Museum?—I have been given to understand, but I only know it from general report, that the next addition which must be made to the British Museum will cost above 200,000*l.*, and will only include the side towards Montague Place.

154. (*Dr. Lindley*.) You propose in this document that the mineralogical and similar collections should go into the galleries, but you do not say in what parts you would place the marbles, the sculptures, and those heavy objects which you would think it desirable to remove from the Museum?—In the large courts. The building being divided, as it is, into several courts of seventy-two by forty-eight, or seventy-two feet by seventy-two, it seems to me that those would be the most convenient courts for placing the marbles in, according to the extent of ground they might require.

155. Mr. Babbage suggested in a book he wrote respecting the Exhibition that the present site was a mistake, inasmuch as it is too far from London; and he proposed, I think, that it should have been placed close to Park Lane. Does anything strike you in respect to that position?—I think either site is equally good; but London is stepping westward so rapidly that what is "far west" at the present day will prove not to be so in the course of a very few years.

156. I ask the question, because as that proposition was made by Mr. Babbage it seems desirable to consider the value of it?—The approaches would require to be altered if it were placed opposite the centre of Park Lane; inasmuch as new omnibuses would no doubt be started making this building a terminus, and the road there in its present state would not be sufficiently wide.

The Witness withdrew.

MEMORANDUM above referred to, in respect to the future Destination of the Building in Hyde Park.

I believe that as the building in which the Great Exhibition has been lately held is adapted to several public purposes for which covered space is wanting, it would be unwise, and distasteful to the country at large, to pull it down; seeing, moreover, that it has already cost so large a sum as 150,000*l.*, and that it may, I believe, be had for such a comparative trifle as about 40,000*l.* I should not, however, like to see it kept up under private management, and therefore left to depend on the energy, and, as it were, trading success of renters, who, having a mere money interest in the question, must take every means to make it attractive by day and night.

The Commissioners are probably aware that the British Museum is already overcrowded, and that it is difficult even now to display some of the admirable works in that in the library,—more in the botanical and zoological departments; and indeed it is notorious that almost before the present building is completed it will be necessary to commence an expenditure of very many thousand pounds for further room, that means may be found to accommodate the existing collection.

Yet the country complains, and justly, that there is not, as there certainly ought to be, a British archaeological museum. The want of proper and sufficient space for the exhibition of modern sculpture is the subject of annual outcry and regret.

Under these circumstances, it appears to me that the building should be purchased for the nation. A further sum of 20,000*l.* or 30,000*l.* would, I believe, defray the expense of a new roof, substituting iron for the present main wooden gutter, and make it wind and water tight.

One portion of this building might be set apart as a Lycian court, another for the Elgin marbles, a third for the Nineveh collection, the Egyptian, the Greek, and so on, as required, each having their own appropriate space according to requirements, and the nave and transept might be devoted to the exhibition of modern sculpture, changed annually.

All these, though there may seem some crowding in the mere enumeration, would in fact occupy a very small proportion of so large a building; and I would therefore propose to lay out the remainder as a conservatory, so as to make it at all times a pleasant promenade. I should consider the garden part wholly subordinate, and should not therefore propose that the temperature in winter should be raised above fifteen degrees beyond the external atmosphere, which could be done at a small cost, and would be amply sufficient for the preservation of the statuary and plants. The galleries might with advantage be appropriated to the mineralogical collection from the British Museum.

The cost of all that I have suggested would be small. Purchase and repair of the building, with new roof, say 70,000*l.*, expenses of extra keepers, gardeners, and firing, not more, I believe, than the interest of the further sum which must shortly be expended on the British Museum, with this immense advantage, that ample room would be afforded for the library and reading room, for the botanical and zoological collections at the British Museum, and for the proper display of the present collection of sculpture, antiquities, for an archaeological museum, which is urgently required, for the mineralogical collection, for all future acquisitions, and for the annual display of modern sculpture.

January 1852.

C. WENTWORTH DILKE.

MR. GEORGE FLEMING was called in, and examined.

Mr. G. Fleming.

157. (*Dr. Lindley.*) You are gardener to the Duke of Sutherland at Trentham?—I am.

158. And you must there have had great experience in all matters that relate to gardening under glass?—Yes.

159. Have you seen the Crystal Palace, and have you looked at it with a view to consider how far it might be capable of being converted into a winter garden?—I have.

160. Do you apprehend that if the proper means were used to prepare it for such a purpose, there would be any practical difficulty in keeping plants in health in such a place?—Not the least.

161. Do you think that all parts of the building would be equally fitted for the growth of plants?—It would be suitable for plants in any part; such for instance as ferns would thrive even under the galleries where it is more shaded.

162. Then you would not except from the fitness of the place even the space immediately below the shade of the galleries?—I would not.

163. Now about heating it; would you suppose any difficulty to exist about applying heating power to such a building as that, which should be sufficient to maintain any temperature that might be required?—There would be great difficulty in getting it to a high temperature; the cost of the heating power would be very great.

164. I mean independently of the cost?—I think the place is on too large a scale to get it up to a high temperature without considerable difficulty.

(*Sir W. Cubitt.*) But any portion of twenty-four feet square, and any number of squares, could be enclosed and heated separately, because the building is so constructed that that can be done.

165. Sir William Cubitt seems to contemplate enclosing separate areas by glass sides, and those might be heated separately?—Yes.

166. Twenty-four feet by forty-eight or forty-eight by forty-eight. It is an expanding building, and you can heat any portion you please?—Yes.

167. Then the tenor of your answer is that it could be done?—Yes, it is quite possible to heat a portion of it to any temperature that is required for the health of plants.

168. You would not anticipate any difficulty in keeping turf alive in this building?—It would be too far from the glass, and the situation altogether too confined, for turf to be preserved in a healthy state for any length of time.

169. What temperature would you conceive to be necessary, supposing always it is merely for the purpose of keeping choice plants, like orange trees, and those more hardy trees which are found in our English hibernations?—I think a temperature to keep the frost out would be sufficient.

170. Would you be satisfied with a temperature of 35°?—Yes; during severe weather that would be quite sufficient.

171. Do you think that plants, if planted there when small, would be liable to suffer in consequence of their distance from the glass?—They would, to a certain extent.

172. Then it would be necessary to begin with large plants?—It would be better to do so as far as practicable; but many kinds grow so rapidly that in their case size at first would not be of so much consequence.

Mr. G. Fleming.

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173. You know it is a large operation, and supposing it were to be done, we must look upon these operations as having to be done upon a large scale. You think plants of considerable size should be taken for the purpose of filling it, rather than little ones?—Yes; because it would otherwise injure the effect; and it might be done with less trouble.

174. What are the large plants best suited to the place? Oranges, we know; camellias, fuschias, and rhododendrons, I suppose?—Certainly; as also acacias, Indian azaleas, magnolias, aloes, brugmansias, and many others, including the most beautiful plants we have in this country, and which would succeed perfectly in such a temperature as might there be obtained.

175. You do not grow oranges much at Trentham?—Yes.

176. Not for external decoration?—There are a considerable number which are placed out doors in summer.

177. What would you say ought to be the smallest size of an orange tree put into that house, if an immediate effect is to be obtained, and if the plant is to remain in the most healthy condition in which it could be preserved; what would you take as the smallest?—From four feet upwards.

178. You would be satisfied with orange trees of that size?—Yes.

179. Would not the building have a very desolate appearance for a long time if these small plants only were used?—Yes, without many large ones were mixed with them.

180. You know the height to the top of the nave is 64 feet, and you may take that as representing an elevation with which the eye would have to compare the trees put in; what would be the effect to the eye of planting such a place with bushes of from four to six feet high? Would it have a good effect?—The effect would not be so good as with larger plants, but I do not think they would look unsightly.

181. You think it would be satisfactory, but not so good as it might be?—Yes.

182. Have you any idea, or have you had any occasion to know, what is the price of orange trees of any considerable size?—I believe I could ascertain that. The Duke bought some very fine ones for West Hill, a few years ago.

183. Would you give the Commission some information on that point?—I will.

184. Perhaps you will be good enough to send it to me?—I shall be most happy to do so.

*[In a letter afterwards received by Dr. Lindley it was stated that ten fine orange trees had been obtained in Paris twelve years ago for 120*l*. Their height 9½ feet, the diameter of the head 4 feet; the tubs 2 feet to 2½ feet high.]*

185. Now supposing that it were converted into half a garden and half a sculpture gallery, and the temperature was not to be higher than that which we have talked of—sufficient to exclude frost with certainty,—what do you think would be the cost for labour in maintaining such a place in the condition in which it must be kept to gratify the public; that is, in a state of perfect keeping, perfect neatness, perfect health, and perfect in all respects as a garden for pleasure and decoration should be, supposing one half to be a winter garden?—About 500*l*. a year I should say would do it.

186. How many men would you take?—The building is eighteen acres, I believe?

187. Yes.—I should say a man to an acre.

(Sir W. Cubitt.) It is eighteen acres without the gallery floors.

188. (Dr. Lindley.) You think that would be sufficient?—Yes. We consider one man to an acre of flower garden to be sufficient; and as the Crystal Palace would be protected by the glass during storms of wind, there would be less liability to damage or litter.

189. Then you reckon a man at 12*s*. a week?—Something about that; I have not considered it particularly.

190. At the customary wages?—Yes.

191. You think eighteen men would be sufficient?—I do.

192. That of course would be exclusive of the principal gardener in charge, and exclusive of all the staff that might be required in addition to the labour?—Yes. I do not mean principal officers.

193. (Sir W. Cubitt.) Exclusive of staff and working tools?—I thought 500*l*. for labour alone.

194. (Dr. Lindley.) Do not you think it would be more expensive to maintain an acre of ground—that you would require more labour in maintaining an acre—in a place of that sort than in open ground?—No, I do not.

195. For example, watering. I suppose it would probably be found necessary to use very large quantities of water, by means of hose, to keep the plants in health; do you think one man per acre would be sufficient for all that?—Yes. A considerable quantity of watering would doubtless be necessary during summer; but this could be done expeditiously by having proper appliances.

196. It was found necessary in order to keep the elms there in a state of health to use very large quantities of water very often, and many men's services were required in watering them. Now, as the trees became large in a building of that kind that necessity would keep increasing, would it not?—It would.

197. Then would not the cost for labour keep increasing also?—I think 500%. would meet that, because the water being once brought there, one man could apply a great quantity.

198. You assume that water would be laid on there, and distributed by hose?—Yes; otherwise it must have to be carried, and thus cause a great deal of labour.

199. That it could be had whenever it was wanted?—Yes; it would alter the circumstances materially if the water had to be carried and applied in the usual way in a garden, but if it were applied by hose it would not require much labour. A man may water a great many plants with a hose from one point.

200. In order to keep a place of that kind decorated during the summer, would it not be necessary to have a number of the small perishable plants which when in flower produce a brilliant effect, such as geraniums?—Yes; as also fuschias, petunias, and many others.

201. That would of course add very much to the labour?—It would.

202. And it would render this also necessary, that a place should be set apart in which such things should be preserved and propagated?—Certainly.

203. A low portion of the building might be used for that?—Yes, a portion might be shut off.

204. Still the necessity of providing all that is not included in your estimate of eighteen men?—No, it is not; that would cause an additional sum to be required, for the labour necessary to produce such plants is very great.

205. To what extent? because it would be useless to maintain a public winter garden, unless it were very much decorated. It should be a beautiful place, otherwise the public would be disappointed. If it were necessary to keep it filled in all seasons of the year with that which would be attractive, a considerable reserved space would be wanted?—Yes, it would.

206. And a considerable additional number of men expressly for that purpose?—Almost double. Most certainly, a continual succession of plants is very troublesome.

207. To keep a place of that kind in a state of beauty some of these plants, which are very handsome in a state of flower and which become ugly out of flower, would have to be removed?—They would.

208. And you must have a reserved place in which they must be kept out of sight?—Yes.

209. As you have in common gardens?—Precisely.

210. That might be anticipated at least?—Yes.

211. Now, can you give the Committee any idea what the possible annual outlay would be for plants and perishable articles of that kind, which would be required to keep the place in a state of high decoration?—That is a question which would require a good deal of consideration before I gave an answer.

212. Spring bulbs, geraniums, calceolarias, and all the variety of bedding plants,—perishable plants?—It would be something considerable, on account of the extent of the place. I should not like to state any amount without further consideration.

213. In spring this place must be very gay with spring bulbs of every kind; and those spring bulbs, in many cases, could never be used a second year?—Many of them could not.

214. In such a place they would be purchased, produced in flower, and perish; that is so?—It is.

215. Hyacinths, and so on?—Yes; that class of bulbs would not answer a second year; but there are many others, as the amaryllis family, gladiolus, ixias, &c., which would succeed admirably for a number of years.

216. Do you think that, upon the whole, the decoration of the floor of that building, by what are called bedding-out plants, would be attended with any practical difficulty; would they draw?—I think the generality of such plants would not be suitable on account of their drawing.

217. What sort of bedding plants do you think would be suitable for that place in the common bedding-out way?—Geraniums, and a number of varieties of plants.

218. Plants could be found that would be suitable?—Yes, great numbers.

219. You do not apprehend, in a confined place of that kind, such as it is now, that plants would be peculiarly liable to get out of health?—No; it would suit a vast number of the most beautiful plants that there are in this country extremely well.

220. Aruncarias, New Holland acacias, eucalypti, and others myrtle-like plants, camellias, rhododendrons, in short, the finer of the plants now employed for decoration?—Nearly all the finest might be made use of there with the best effect.

221. Suppose it should be contemplated to introduce statuary and objects of that kind largely among the plants, would the amount of labour which you have already mentioned as sufficient to maintain the garden be increased by the extra care necessary in consequence of such valuable objects being introduced; would you require a better class of men, for example, at higher wages; or would any extra keeping, do you conceive, be necessary?—There would be some extra keeping required.

222. Then would the number of men that you speak of,—that is, eighteen, as first proposed, be sufficient to execute that work as well as their common work?—It might possibly in that case be necessary to have some additional hands.

Mr. G. Fleming.

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223. Suppose it were made into a garden of great resort, what would the paths be?—Gravel would, in my opinion, be the cheapest, the cleanest, and in every respect the most suitable material; but for the main walks the present flooring might remain, so long as it would last; and for laying round specimens of sculpture the neatest and most durable pavement that I am acquainted with is the tiles of Messrs. Minton and Co.

224. But if great multitudes of people passed into a building of that kind over dry ground like gravel a great deal of dust would be necessarily raised?—Very little dust would be produced if the gravel were thoroughly moistened in the morning.

225. And the men you speak of would be sufficient to attend to those walks?—Yes, in consequence of water being laid on.

226. But supposing great quantities of dust were raised in the air, and that dust was continually falling on the plants in the building, would not that require a great additional amount of labour for removing the dust by water again?—In that case the labour would certainly be increased; but the best way would be to prevent the dust, by using a material which is free from that objection.

227. Then it might be a question whether gravel would be the cheapest; whether stone walks would not be the cheapest?—A great deal of dust would be produced on stone, which from its hard compact surface could not be kept moist like gravel, and it would certainly not look so garden-like.

228. Are there not some fragile plants to which the application of water by hose is scarcely possible, soft-wooded plants, with fragile, delicate leaves; although you might have water laid on everywhere in the manner proposed, yet, if they would not bear the violence of the water when thrown upon them, would it not be necessary to clean them by the hand, by sponges?—The most fragile plants would bear to be syringed.

229. You think there would be no such necessity for handwashing?—Except for insects.

230. Do you think insects, such as the red spider, the mealy bug, and all those pests of conservatories, would be more likely to become troublesome there than in other places?—No, I see no cause why they should.

231. Of course the amount of labour which you mention as being perhaps sufficient for maintaining such a place is quite exclusive of any labour that may be required about the heating apparatus, or do you include everything in your estimate of eighteen men, supposing there were a great many fireplaces?—Probably six or eight fireplaces would be required.

232. Then your estimate of eighteen men would still be sufficient, on the supposition that there were six or eight large stoke-holes? You know, there is moving fuel, cleaning out these places, and a great deal of work belonging to them?—It would be a pity that there should be a deficiency of men in a place of that kind; and therefore, upon consideration, I should think it better to add to the number.

233. In reality, you think under the peculiar circumstances of the building and the great extent of it, some additional labour would be required for the fireplaces?—I should think it better that a man or men be employed expressly to attend to the fires, and for such other work as does not require skill.

234. I understand you the turf would not thrive there?—I do not think it would.

235. Do you think, as that building is now constructed, the air is in sufficient motion to keep plants in a state of health in hot weather?—I think some additional ventilation would be necessary.

236. I do not know if you are aware that the sashes themselves were here and there removed in the summer to allow the heated air to escape?—I understood that such was the case.

237. That was a temporary contrivance. You saw the manner in which it is proposed to ventilate it,—by means of the contrivance called louver boards,—those openings at the top and bottom?—Yes; I examined those.

238. Did you see them at work?—I did.

239. Did you think that sufficient, by such a contrivance, to keep the air sufficiently changed and cool, to render the place fit for plants to grow in?—I believe some additional ventilation would be required at the top.

240. (*Sir W. Cubitt.*) There are tiers of louvres at the top?—I am aware there are some at the top also; but without an abundance of ventilation at the top the circulation would not be sufficient to keep the plants in perfect health.

241. (*Dr. Lindley.*) It is practicable to make the sides towards the top to open, as they did occasionally, and you would get very great openings in the summer. I observe upright sashes hinged and made to move, or to run upon rails.

242. But in winter, in cold weather, that is a very different question; there is no provision whatever in the building for ventilation, except by letting in directly the of ventilation would suit the kind of plants it is proposed to keep there?—I do not think the louver system of ventilation at all suitable for plants.

243. That, you think, would have to be altered?—Yes; they cannot be made sufficiently air-tight; they do not fit sufficiently close to keep out the cold air in winter.

244. Then, among other things, you think it would be necessary to employ some other mode of admitting air in the winter?—I do.

245. Do you think that plants would remain in health there in the winter ; considering what a large space there is in the interior, do you think that in such a place they would remain in health, the air being somewhat heated, without a continual introduction of fresh air ?—No, they would not.

246. Then an alteration in the ventilation is, in your mind, an indispensable necessity ?—It is. Top ventilation is all that would be necessary in the winter to change the air, and, except in very mild weather, it would be injurious to admit a current of cold air at the lower part of the house.

247. Have you any suggestions to make to the Commission ; has anything occurred to you to point out, exclusive of anything that has arisen out of these questions ?—It occurred to me, that if the whole building were devoted to plants, it might be divided for each quarter of the globe, as there are plants from each quarter.

248. You think it might be made a place for geographical arrangement ?—Yes ; and there might be geological and other specimens in connexion with various points of natural history, so that it might prove more interesting and instructive to many parties ; and sculpture might be introduced among the plants, instead of being placed separately.

249. Have you sculpture at Trentham ?—We have some.

250. Do you not find that accidents are frequent and unpleasant with gardener's tools ?—It frequently happens that statues are broken, but if you can afford men plenty of room around the figures there is no danger. I should be very glad to make that a means of occupying some part of the space, as it is on such a scale.

251. There are eighteen acres, we will say ; of that, how much would you allow for walks ; what proportion of the whole area ; half or one third ?—One third would be sufficient.

(Dr. Lindley.) That would reduce it to twelve acres.

(Sir W. Cubitt.) In laying it out for inspection, I thought about half walk.

252. (Dr. Lindley.) Supposing twelve acres were required for absolute cultivation, the rest being walks, how many plants would be required to an acre to produce an immediate effect ; supposing those plants to be of the nature of camellias and rhododendrons and orange trees, and things of that sort ? in other words, what distance apart would you place them ?—That is a question that bears directly upon the cost of the operation ; it is so important that I would rather answer it after consideration.

253. Would you say ten feet apart, supposing they were common bushes ? take them of the diameter of three feet ?—Ten feet apart would be near enough ; room must be allowed for the plants to grow.

254. Yes, and for bedding out plants among them. I speak of the permanent ones which must be there at all times ?—The average distance for permanent plants should be ten feet.

255. At first ?—Yes ; if planted too thick it injures the plants for many years. The smaller plants towards the walks might be closer ; but that is the average distance.

256. Have you ever seen anything of the plan of heating these buildings by steam instead of hot water ?—I have seen some buildings heated by steam ; but they are not at all satisfactory.

257. It does not answer ?—It struck me so.

258. To what cause do you ascribe that ?—The steam did not circulate freely.

259. That arose probably from unskilful arrangement of the apparatus ; but is there no other reason that you are acquainted with ?—There is always too much heat near the boiler, and too little at the other extremity of the house.

260. You do know the reason why Mr. Loddiges pulled down his steam apparatus at Hackney ?—No, I do not.

261. In your opinion, what ought to be the annual payment to a gardener having charge of such a building ?—From 200*l.* to 300*l.* a year.

262. That would be in proportion to what is customary in this country ?—It is more than what is generally given in private establishments ; but the person holding such a situation would have very great responsibility.

263. He must be a very superior person ?—Yes.

264. Then I think the result of your evidence goes to this : that you do not see any difficulty in converting this Crystal Palace into a garden of a certain kind ?—No, I do not.

265. And, as a gardener, you would not be unwilling or afraid to undertake such a charge yourself, supposing it were necessary ?—No, I should not be at all afraid.

266. You should not feel it to be a task beyond a gardener's skill ?—No.

267. There are no difficulties except difficulties that could be overcome ?—No.

268. In a building of that kind there will be always a very great amount of condensation taking place in cold weather, inside the glass, which is at the expense of course of the moisture in the building. Now do you think that circumstance would exercise any injurious effect upon the plants in it ?—It would ; the condensation would be chiefly upon the metal, but at the same time there would be some on the glass, which would ultimately run to the metal which forms the gutter, and would form rust there, and drip ; and this is very injurious to plants when it falls upon them.

269. You think the drip would be what they have most to fear ?—Yes.

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270. (*Sir W. Cubitt.*) But supposing there is no drip, with the wettest atmosphere and the greatest condensation, then would there be any ill effect?

271. (*Dr. Lindley.*) My question was not as to drip, but as to the effect of the glass condensing from the atmosphere the moisture which the atmosphere contains?—We do not find it is injurious to plants in houses of moderate size.

272. But this is a peculiar building; there are enormous quantities of horizontal glass exposed to radiation, and we must expect a very considerable amount of condensation; and I would ask whether you do not think that matters?—No, I do not, from experience. We have had a house built ninety feet long, sixty feet wide, and fourteen feet high, and I find the plants are not affected; in fact the principle of construction is the same as this, and the only fault is that the plants grow too luxuriously.

273. Is that a cold house or a hot house?—Such as we are now talking of; for plants that require merely a temperate atmosphere, to exclude frost; and we carry off the condensed vapour by having a zinc gutter suspended beneath the principal one.

274. Now, supposing that we should have an exceedingly hot brilliant summer, as we have sometimes, would plants there suffer without some screen or shade interposed between them and the direct rays of the sun?—Not if the ventilation were sufficient, and the surface of the beds and walks were moistened every morning. The ventilation is one of the most important things.

275. Suppose it were necessary, for any other reason, to introduce a shade, either above the roof or below it, as, for example, for the comfort of persons who visited it, to keep off the excessive glare of the sun, do you think the plants would suffer if that screen were kept up for any length of time?—They would if it were kept up night and day for any length of time.

276. But there is a great quantity of lateral light. It is proposed, you know, that the whole of the wooden sides should be taken away and replaced by glass; there would be glass in every direction?—But direct light is of the most consequence. If the shades were fixed it would be injurious.

277. It has been suggested by one gentleman that the galleries should be made use of as places in which minerals and other objects should be exhibited. Now, *this* being a section of the house [*sketching*]; *this* being the floor of the gallery, and *this* the outside, towards the south, it would be impossible for persons to visit these galleries unless the whole of *that* roof were shaded; because, ventilate them as you would, the amount of light and heat would be so unpleasant, that there would be a necessity for putting a shade over the roof *here*, and the effect of that would be to take away, to a certain extent, the lateral light I am talking of. Would that have an injurious effect on the plants growing *here*, on the ground?—It would.

278. It would give them a tendency to draw?—It would.

279. Even although the light comes in under this gallery [*referring to sketch*]?—Notwithstanding that, it would have a tendency to make the plants draw.

280. That would be a difficulty not easily overcome?—I think the canvass could be made to be moved easily.

281. But if it were permanently fixed, so that there were a continual shade *here*?—I think it would be against them; it would affect the health of the plants.

282. It would certainly diminish the quantity of light?—Yes, and that would be injurious.

Having delivered in the following Statement, the Witness withdrew.

The most perfect arrangement would be to separate off with glass the four compartments formed by the transept for the growth of plants requiring to be kept at a temperature above the freezing point, arranging them geographically, by allotting to each compartment the plants peculiar to that quarter of the globe which each division of the building might be supposed to represent. The transept itself might then be devoted to specimens of sculpture, and various works of art, such as ornamental vases, fountains, &c. interspersed with such trees as oranges, clithra arborea, and some of the finer magnolias as standards, with camellias, altingea excelsa, and Mexican and other pines, which do not succeed out of doors, but would thrive well here. Acacias also, such as *A. Dealbata* and *marginata* would form beautiful objects, and flower early in the spring with the camellias and some of the magnolias.

As it must necessarily be a work of time to procure a sufficient number of oranges, camellias, and other permanent plants, their place might be supplied for a time by such fast growing and beautiful plants as *fuchsia corymbiflora*, *brugmansias*, *acacias*, *abutilon venasta*, and others, which would look exceedingly beautiful either as standards, or formed into arches over the walks. Some arches at Trentham, nine feet high and seven wide, have been completely covered in three years by plants of the *fuchsia corymbiflora*, which were only three feet high when planted out. The various *passifloras*, *cobæa scandens*, *mandavillea suaveolens*, *pecoma jasminoides*, *jasminum hirsutum*, *ipomœa learri*, &c. trained in festoons from pillar to pillar. To keep the place gay in the cheapest and readiest manner it would be best to have a selected assortment of plants that would give a fair quantity of flower at all seasons, without going to the expense of growing plants in pots to place along the front of the borders, which is never a satisfactory method, as they do the

principal plants injury at the top by overcrowding, and at the roots by excessive damp occasioned by the water required by the pot plants. Geraniums of some of the bedding kinds would soon form large bushes when planted out, and from their great variety of colours would be very useful and extremely beautiful; as would also many of the other bedding plants, such as calceolarias, petunias, kalosanthes, humea elegans, and the pea roses, all of which kinds might easily be procured.

With regard to the orange trees, they should be grown in handsome iron tubs, without bottoms, so as to allow the roots to pass through into the ground, as they are always more healthy, and require less water than when the roots are confined to the tubs. The magnolia grandiflora treated in this way, and trained in the form of immense orange trees with stems six or seven feet high, would be exceedingly beautiful, producing as they would their fine white and deliciously fragrant flowers from July till November.

Nothing would give a greater charm to the whole than banks of turf; but it will, I fear, be difficult to obtain anything to answer this purpose satisfactorily. The lycopodiums, although beautiful to look at, will not bear being walked upon.

The walks should be of gravel, the effect of which would be so much more natural than either stone or slate, both of which produce a great deal of dust, and cannot be kept damp so long as gravel may. The walks should be well moistened every morning, to prevent dust either from dryness or too much traffic, and if this were done early it would cause no inconvenience to visitors.

With regard to the heating of the house, it might easily be done if, besides the hot water pipes, the smoke were conveyed in flues immediately within the upright glass of the sides. This would be the point where intense frost would act most injuriously, and as there can be no doubt but flues may be so constructed as to answer perfectly for conveying the heat a considerable way from the boiler, and to give out for a certain distance quite as much heat as pipes, it would be proper in so large a house to take advantage of this, so as to apply the whole of the heat generated by the fuel to the maintenance of the required temperature. A considerable quantity of soot would also be left in the flues instead of being allowed to fall upon the glass, while the atmosphere would not be so polluted with sulphur, as is the case when the smoke is carried away at once by the chimney. A border of plants should run between the flue and the nearest walk so as to conceal it from view; and creepers should be carried over from the border to the side pillars. No fear need be entertained of the flues producing too dry a heat in a house presenting so large a surface of soil and gravel, which would be constantly supplying vapour to the atmosphere; but were the surface paved or coated over with any hard material, then indeed would there be danger during clear cold nights of the plants suffering by the excessive abstraction of moisture from the atmosphere. In a house at Trentham where the walks are gravel, and the rest of the surface soil, the evaporation is too great, and the plants grow too vigorously; but the situation of the Crystal Palace is much drier, and I believe there would be no difficulty there either from a deficiency or a superabundance of moisture, excepting in summer, when the ground would of course require to be well and thoroughly watered about once a week for permanent specimen trees, and more frequently for smaller shallow rooting plants.

Third Day.—Wednesday, January 28, 1852.

Present.—Lord SEYMOUR in the Chair.

Sir WILLIAM CUBITT.

Dr. LINDLEY.

Sir JOSEPH PAXTON was called in, and examined.

283. (*Chairman.*) We wish to ask you in reference to the purposes to which the Exhibition building might be applied, either in its present situation or if it were removed elsewhere. And first I would wish to ask you, from your great experience and knowledge of these subjects, whether, supposing you were required by the Government to make a building for the purpose of a covered garden, you would adopt a building similar to the Exhibition building?—Not exactly. When I thought of the scheme of the Exhibition building, I had, first, the object in view of making it a building suitable to the Exhibition, and next to make it as cheap as possible, because I knew that was a great element in the question, and must be looked upon as having great influence in its adoption, and therefore I left out almost everything in the shape of ornament; indeed I brought it in as the simplest, the merest mechanical building that could be made. I knew perfectly well that it could be embellished, and that a great deal might be done with it. But if I understand your Lordship to ask whether I could make a better building, if I had to make another for the purpose, I tell you distinctly I could,—very much.

284. When you say a better building, is that from the experience you have gained from this building, or your general experience?—From the general experience I possess. This

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Sir Joseph Paxton.

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Sir Joseph Paxton. building could be made available for all the purposes I contemplate ; but if you ask whether I could make a better, I say, yes.

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286. That is, as I understand from the general impression of the public, not with the idea of making it a garden at a very great heat, but merely protected from the weather, and warmed to a certain temperature?—I dare say your Lordship has not had time to read the pamphlet I wrote in the summer time ; but I there stated that I only contemplated the merest possible warming, just sufficient to give bodily health ; that I should want you when you walked there in your great coat, to take it off when you got in, and take exercise. A little above the general temperature, and just sufficiently warm to grow plants. I never had an idea of making it a moist house or a hothouse, but a temperate house ; and my notion was only to cultivate such plants as would bear that temperature. Plants that come from the Cape of Good Hope, from Mexico, and from Australia, and all countries where the atmosphere is drier than ours ; those are the plants that I contemplate growing more particularly in this building, so that moisture would be one of the points one would not want so much of.

287. But those plants alone would hardly be sufficiently ornamental for the purpose unless they were interspersed with flowering plants?—Then I should take camellias, China rhododendrons, and all the more beautiful and showy plants, such as would grow there in perfection, and I would have all such brilliant and entertaining plants as would be beautiful to look at. I also contemplated in my pamphlet to make it a geological place. I would bring all the strata, and have them put there upon a large scale. I would show you the plants growing upon their native rocks, and upon their particular soils. A great deal of information might be gained to the country by adopting geological and geographical arrangement. Then I contemplated more than that in the first instance. I would bring from Egypt and other ancient countries an illustration of the statuary and all the arts of Egypt, from the earliest periods down to the present time. I mean that I should bring those relics from the British Museum.

288. But as to the soils and plants ; first, for the rhododendrons and so on, would you have a small Himalaya in the middle of the house?—I would give the character without the extent of it. I should not attempt that, the place is not large enough. If it were big enough, it would be very interesting to do that ; but the nature and character of it would do, without giving you a model of it.

289. (*Sir W. Cubitt.*) You would have sufficient soil of the proper kind?—That must be according to the plants. I believe I am right, as Dr. Lindley knows, that a great deal depends on the character of the geology. The great thing I have studied has been about woods and timber. I have had a large experience in timber, and I have reduced it to such a system that I could tell you at once whether any particular ground would grow oak to perfection, and what the nature of the oak would be ; whether it would be a short carrotty oak, or whether it would be a soft oak ; and the whole natural history of the tree. I could tell you from a survey of the land ; not the surface ; I consider that the least important part of it.

290. (*Chairman.*) Suppose it were intended to cover it with plants for the purpose of a garden, it would be necessary, would it not, to put in large plants, because of the height of the building?—You might do that. There are so many people have large plants to give away they would be too glad to give them ; a large quantity that are too large for ordinary green-houses. There is no doubt you would get contributions of plants to an amazing extent for nothing at all to put into the building. I am positive that would be the case.

291. Then as to the small plants ; do you think they would grow well at such a distance from the glass?—In our experience in the great conservatory at Chatsworth we find the small plants do perfectly well. From the intense light of the place there never has been any the slightest difficulty in growing the smallest things at a distance of sixty-five feet from the glass.

292. As to turf?—In our great conservatory we never could put turf, because it has been a hot place ; but I have no doubt it would do here.

293. (*Dr. Lindley.*) It would grow?—I have not the least doubt it would do perfectly, because I know the nature of shade, and how far grass does under shade ; and I know it would be perfection, as far as grass goes, in the temperature I should propose to keep.

294. In an ornamental ground of this kind, which contains eighteen acres laid out in an ornamental manner, there must be some place near it for the preparation of plants that are fitted for it, and for the removal of plants when they are not in beauty.

294*. (*Sir W. Cubitt.*) In common parlance, a potting house?—Of course that would have to be got in the neighbourhood ; probably at Brompton, in the district somewhere behind those old nursery gardens of Markham's. But in order to make the building a garden it would be necessary to have also something connected with the building itself ; and that I got out in the summer time, and I will show your Lordship (*producing a plan*). That was what I proposed to put at the end of the building. I dare say you may have seen a view of it in the shop windows, with towers to it.

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294 **. This projection is added. *This* is the present end of the building [*referring to the plan*]?—That will be at both ends.

295. (Dr. Lindley.) At both ends you throw out a similar projection?—Yes. [*Explaining.*] This I should keep glass,—ground glass,—and this would be a large yard *here* for the purposes of soils and all sorts of things that would be wanted about the place, and *these* are the ventilating shafts. These are glass towers for the chimneys and heating apparatuses for the building; and this will add much to the effect of the building, by giving these circular ends. They will make a sort of finish to it.

296. *This* is turf [*referring to the plan*]?—Yes, turf; and two fountains on the outside of it. Now this is another form [*producing another plan*]. To see the cheapness of it, I tried two plans. That was what I recommended; and this is another application of the same principle, but not with circular ends. The circular ends would give it a very good effect. While upon that subject I gave some consideration to the approach from the Kensington Road. That I consider has been rather an imperfect thing all through the Exhibition. It was only a temporary arrangement, and was found very inconvenient; it stopped the way, and was a great stoppage to the public. Now if it were made a permanent building, I should wish to throw out this idea [*producing and explaining another plan*]. Now, *there* is the Kensington Road, and upon this plan you would set down *there* under cover; that would be the pathway that goes along the road, and you would go up steps *here*, and across the drive (*this* would be an arch across the drive), and land *here* upon the first gallery in the building. That would be a safe way, a dry way, and a nice way. Then I would put the two lodges in *this* way. Here is a sketch [*producing a perspective view*] showing what the appearance of that would be. That would make a nice finish to the Kensington Road side, and would give a dry communication at once. People could set down and take up without trouble, and it would not interfere with the Park to land there.

297. (Chairman.) Would you keep the whole building of its present size, or would you wish to diminish it?—I should like to keep it. You could not put up a building large enough for me, almost. I have a great reverence for the size; and what I propose is to put these ends to it. I should not like to make it less. I will engage you can make it interesting; quite as interesting as ever it was before.

298. (Sir W. Cubitt.) I suppose you see no difficulty but that the building might be heated in compartments; portions of it for high degrees of temperature?—No difficulty whatever. I have got a plan for a warming stove, to raise the temperature in any division.

299. (Chairman.) You would propose to allot off portions; to have different temperatures in different parts?—No, I do not think I proposed to do that. If you ask me that question, I should propose, I think, to do one thing, and that is to enclose one small bit for the growth of the plant that caused the building to be designed; I would have a large water place for the Victoria Regia; that is the only thing I should take into a warmer temperature. You might do it, but that is not my notion.

300. (Sir W. Cubitt.) I only spoke of the difficulty. Would there be any difficulty in making different parts of it hot, dry, moist, or cold?—None whatever.

301. (Dr. Lindley.) But if you have a moist and hot atmosphere maintained there, you would not be able to use the present wood roof?—How is the present wood roof of Chatsworth conservatory, which is just the same?

302. But I do not think at Chatsworth that great degree of moisture which Sir William Cubitt contemplates is in the habit of being maintained?—It is enough to keep all the tropical plants, except—

303. Yes, with certain exceptions?—But they are slight, and occupy very little room.

304. If it comes to a question of growing certain kinds of plants requiring a high temperature and moisture, you could not contemplate a roof so slight as this, of wood, lasting in such places?—My opinion is, after great experience,—and I have gone into that question without the smallest prejudice in favour of wood,—my belief is, that (unless it is made of copper or brass) wood will last longer than iron in such a place. Wherever my experience goes, that is the result, and I have tried the roofs in every possible way. If I had to-morrow morning to put up a roof, and you gave me the money to spend for doing it in metal, I have no doubt I could put it up so much cheaper in wood, that the interest of the money I should have over would put a perpetual roof on for everlasting.

305. (Chairman.) That is, even if it required great moisture and great heat?—Yes.

306. (Dr. Lindley.) You know there is a house in the horticultural gardens occupied by Mr. Gordon; one of the oldest there?—Yes; it was removed from Kensington.

307. Yes. We have removed the roof of that essentially three times; and yet we constructed it with the best materials we could purchase, and did it in the best manner that the clerk of the works was able to suggest. That roof is always under repair; it is no longer what it was?—That was kept like a vapour bath, and I never pretended that any part of this should be. It is not at Chatsworth itself. The Chatsworth roof has been up thirteen years, and it has never cost us a penny in repairs; it has never cost a shilling, except by broken squares and so on; but as far as the roofing has gone the woodwork has never cost a shilling, and is in as perfect repair as the day it was put up. There is not a vestige of difficulty about it. I do not believe this wood would last

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for ever ; but look how cheap it is !—how easy to replace ! Referring back to the cost of things—your great conservatory at Kew—the contract for that was 37,000*l.*, and they say the man lost by it ; it cost 50,000*l.* That has been durable, and a great deal of it can be made so. But look how little you have got of it ; you have got no extent ; and if you were to do this Exhibition building in the same sort of manner, and spend the same money on it, I do not know what would be the extent of it. The cheapness of the material and the simplicity of form is so great, that the interest of the money that you would have spent if you put it up in this other very durable form would always give you a roof to the place.

308. (*Chairman.*) Suppose you were asked by the Government to give them a plan for a covered garden for the Parks on a large scale, you would make it with a wooden roof?—Oh, most undoubtedly ; not exactly like the Great Exhibition building, because my notion of the stability of one of these great buildings is this, and what I intended for the great Exhibition building is this ;—namely, that all the sinews, and everything connected with strength, should be iron or metal ; that in fact the outline of the building should be like this table, and the covering of glass and wood like the table cloth spread upon it, so that you could renew it at any time and in any manner you liked, and so that when anything happened to it you could repeat and constantly keep it up ; that is my notion of it. Now in the Great Exhibition building they did not carry that out to the extent of my wishes ; there is wood in some places where there should be iron.

309. (*Sir W. Cubitt.*) There is a great deal in the building that might have been better done otherwise ; but there is nothing there but what was done in order to get it completed in the time?—In my plan I made metal gutters underneath, to carry the water away from the other gutters. That is essentially carrying out the principle of making the whole stability of the building and the connexion of it of metal ; and then the other wooden gutters were to carry the water into these ; and that is the way I should execute a building of this extent if I had to do it to-morrow morning.

310. (*Chairman.*) You would have the skeleton of iron?—Yes.

311. (*Sir W. Cubitt.*) The skeleton of the roof should be of metal?—Yes ; that part that carries off the water.

312. All the Paxton Gutters also should be of metal?—I do not think they would last a bit longer, and then you would have iron and wood to join together in the gutters. If you have wooden bars and iron gutters you will have the greatest difficulty in the world in making them act together. The two do not act together. Metal expands and contracts, and is subject to certain influences ; wood is a non-conductor, and is not affected in that way. My plan is to spread the whole covering upon the iron, and fasten it to it. I should never bring any iron to exposure to the atmosphere. I think if you had at all an inclination to put iron gutters, you should have our gutters at Chatsworth, which have been up twenty years. See how well they stand, where the water is carried off from the wood. What requires to be done there, upon the wood, would be to put in the Paxton gutters, where they join the cross gutters, either zinc or lead, with white lead, so as to let channels go clean down there without allowing the water to hang there ; because I maintain that the great principle to keep wood from rotting is to keep it exposed to the atmosphere. Wherever you keep wood covered up it will not last very long ; for instance, if you lead these gutters they would not stand ; they would rot three times as fast. You have only to take care that the water is quickly delivered from it, and to keep it well painted, and there is no end almost to the time that good wood would last.

313. (*Chairman.*) Do you mean the Victoria House?—No ; any house.

314. You referred to the gutters of a house at Chatsworth?—I meant the great conservatory.

315. Is the Victoria House all wood?—All this entrance part of the Exhibition was all covered with wood outside.

316. (*Sir W. Cubitt.*) The Victoria House was very much like Messrs. Fox and Henderson's offices in size?—It is sixty feet long and forty feet broad.

317. And their building was something of that size?—Yes ; I carried that over with one girder. Then the under part of my girder ; I have one underneath, and another on the top, outside ; and all these are drawn into a girder at once ; the roof makes a girder. That is where the Exhibition is wanting ; it wants that tie across it at all the places.

318. No doubt it wants many things with regard to the roof which time did not permit?—Certainly ; and I say it is a marvellous thing ; to see how that was begun ; when you look at the weather and the winter, it is marvellous how they did it as well as it is. But that roof is susceptible of being made good enough, and to last a great while. I will guarantee it to last for thirty years.

319. (*Chairman.*) Now supposing this building were applied to the purposes of plants, would the system on which it is at present built do for their ventilation?—With a very little alteration.

320. You think the louvre system would answer for the ventilation?—With a little alteration about the top. I should keep the louvres shut down about the foundation.

321. (*Dr. Lindley.*) Would you close them up below?—No ; you must use them.

322. I thought you said you would dispense with them?—I would keep them, because it would be better. It would keep people from seeing in. If you put any other venti

lation there it would be liable to objections from people in the Park. I would keep them there, and keep it the same as I have in the building for the New York exhibition. I would keep it all upon centres. I have got the ventilation on a different plan altogether there.

323. You alter those louvres, although you retain them?—I would alter the top ones to have more direct ventilation.

324. (*Sir W. Cubitt.*) You would keep the louvre principle, but in a different form?—I would keep the louvres altogether at the bottom. Iron altogether would be better; but in the covering of the top with canvass,—it would be required in hot weather,—it would require a great degree of ventilation; but it is all easily done; there is no very great difficulty about it.

325. (*Chairman.*) Assuming it were considered desirable to remove the building from the Park, do you think it might be used with advantage in any other place for such a purpose as either the exhibition of plants or of collections of antiquities or statuary?—No. I think there is no place so good as where it is.

326. But supposing it were thought desirable to be removed, do you think it would be advisable to use the materials of this building, or, if such a thing were wanted, to begin afresh?—That is a very difficult question.

327. The building, as we are told, if the Government were to buy it, would cost us 65,834*l.*?—Now? 65,000*l.* to take it now?

328. Yes?—Then what would the removal cost?

329. (*Dr. Lindley.*) But, in addition to that, there is the cost of making the roof watertight to be added; that would be 26,000*l.* more, making 91,000*l.*?—Where it stands?

330. (*Chairman.*) It would cost us that to keep it there; and I am told that for 126,000*l.* I could remove it, and fix it up elsewhere within a reasonable distance, with all the permanent character that is required?—Yes.

330* (*Sir W. Cubitt.*) Including roof and removal, *ex* the difficulty of foundations, as the foundations might have to be by iron plates?—There might be an extra cost for that, or not?

331. (*Chairman.*) Yes. In that calculation of 126,000*l.* I will put this; supposing I found ground as suitable for the foundations as the present Park is. Of course there would be something extra for any deficiency of ground?—I do not quite understand what your question is.

332. I wish to know whether you think,—considering the cost of the building,—the money for which it could be purchased,—whether it would be advisable to buy it, in case we wanted to have it somewhere else, or whether it would be better for our museum or other purpose to begin afresh?—Upon my word it is a very difficult question, indeed. It comes to two questions. There is the money question, and the question with me of disturbing the building. There are two questions in my mind.

333. I assume that the building is objected to; that it is thought desirable to remove it; that although the building has great merits and great beauty, yet that there are reasons why it is not desirable to keep it where it is. Then, as the building is offered to us to be put up somewhere else at 126,000*l.*, I wish to ask your opinion whether you think that would be desirable?—I think for 25,000*l.* in addition to that I could put you up a much finer, a more magnificent, and more appropriate thing than the Exhibition building.

334. (*Dr. Lindley.*) It will be more than this rough estimate of 126,000*l.*, because there must be a large margin for unforeseen expenses, at all events?—Does that include warming?

335. For example, putting on these ends, altering the ventilation, and a variety of matters which would involve the Government in considerable expense beyond the 126,000*l.*; so that a large margin must be left?—You could not put the same building anywhere without making it efficient. I should think the two things would balance.

336. (*Chairman.*) If it is to be permanent, and adapted to its intended purposes, there must be an additional expense?—If I understand your Lordship, the 126,000*l.* would be for putting up the building as it is now; that is, making the roof right.

337. Making the roof of the most permanent character, and re-establishing the building as it is now. Then there is another question I wish to ask you. It has been suggested that the centre, the transept, and a certain portion of the building in connexion with the transept, might be taken with great advantage, for the purposes of a conservatory, to Kew; not for a conservatory like the palm house, but for the Australian plants and others that do not require that temperature; and I wish to ask you whether you think it would be worth taking that portion for such a purpose, and whether it would be adapted to that purpose?—I do not see any difficulty in its adaptation to the purpose at all; but it would cost a large sum of money to take away the centre; the centre would be the most expensive part to take away. It would cost a very large sum of money to do it.

338. But supposing the money was not an object, you would see no objection to its being applied to such a purpose?—No. You must understand, to begin with, that I object to its removal *in toto*, altogether.

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339. That we understand. But now supposing the building were to remain as it is now, but rendered perfect by the contractors for the purpose of its conversion into a winter garden, with the accessories belonging to it, have you calculated what the cost of conversion would be?—Yes; I have gone into that pretty accurately.

340. Perhaps you can favour the Commission with that?—Yes [*referring to a paper*]. I have gone into detail to a certain extent, and the ground work I consider would cost 5,000*l*.

341. What do you mean; preparing the place for plants?—Yes.

342. (*Dr. Lindley*.) Does that include the supply of plants that would have to be put in?—No.

343. What is commonly called ground work?—Yes.

344. Would that include the cost of making walks?—No; it is the general work.

345. £5,000 for what is commonly called ground work?—Yes. Then the heating apparatus would cost about 7,000*l*.

346. How would you propose to heat it; by hot water?—Yes.

347. And what number of furnaces would you have. It appears from this plan, four at each end [*referring to plan*]?—I would have a tunnel all up the building from end to end [*explaining on the plan*]. Then for the geological part of it, the walks and all that, that would take another 5,000*l*.

348. What would you make your walks of?—Gravel.

349. (*Chairman*.) You prefer gravel?—Yes.

350. (*Dr. Lindley*.) But if this were a place of great resort, and a great number of persons were continually passing over gravel walks, that would necessarily raise a great deal of dust in the air?—Of course it would, if you did not attend to it, and keep it down.

351. In what way can you do that, because if you water walks in such a manner as to render them secure against dust rising, you make them so wet that people cannot walk upon them. If, on the other hand, you make them agreeable in the early part of the day, in hot weather, by the middle of the day they would be all ground to pieces. We know what that is in the Horticultural Society's grounds. The walks are destroyed after the first meeting, and yet we make them as wet as we can?—I have not divulged any plan of the entire scheme; but supposing it were to be done, there are various arrangements by which it could be effected. A grand promenade might be kept with a sort of wooden trellis, as we have at Chatsworth, which is the best of all things for dust and plants. But there might be such a variety of walks in different parts. You might put *spar*, for instance, down. Your gravel at the Horticultural Society is a dirty gravel. I know it very well; I have been there very often. I know what it was when I had to do with it, and what it is now. At Chatsworth we put down clean *spar*, which we get at a very cheap price in our country, and it is a very good thing indeed; it lets the water pass through it. The centre of our great conservatory is done with it, and it has been done so for twelve years. It sifts the water through, and you walk on the dry *spar*. There is no difficulty in that.

352. But it is important when you come to consider cost. You know there would be six acres of walks required, and there might be nine acres left to prepare as walks?—I do not think there would be so much as that.

353. But taking it as low as six acres?—Nine acres out of eighteen! You could not want so much as that.

354. (*Sir W. Cubitt*.) There were nine acres for walks in the Exhibition. But you appropriated the Exhibition in a different way to this.

355. (*Dr. Lindley*.) You could not take a lower estimate than six acres; so that the walks are an important question?—I have no doubt in the world that the maintenance I put down for it would be quite sufficient to keep that up, and renew it in every possible way.

356. The question is not about maintenance just yet, but conversion?—Well, that flooring will last a good many years yet; and wherever that could be appropriated and brought in I would use it. It would not be a wise thing to take it all away at once. You are aware I should take down some of the galleries; I should not leave them all as they are now.

357. (*Chairman*.) You would take down some of the galleries?—Yes; that is necessary to carry out my scheme.

358. (*Dr. Lindley*.) What is the precise reason of removing the galleries? their intercepting light?—Yes; and they would intercept the views; they would injure the grand effect of the place. I would have both of those middle galleries taken out.

359. There are two reasons; partly because they would destroy the effect, and partly because they would intercept light?—Yes; they would spoil the grandeur of effect of the building; and the galleries on the outer side would have a far more magnificent effect by having two great side galleries, and those two intermediate ones removed.

360. All that would cost more money, in addition to this 126,000*l*.?—If they were to be taken out, the worth of the material would be much more than the expense of removing them. Sir William Cubitt will undertake that, I am sure.

361. Then you estimate the ground work, 5,000*l*; warming, 7,000*l*; walks, &c., 5,000*l*; that makes 17,000*l*.?—Yes; and then contingencies, various things, 3,000*l*; making 20,000*l*.

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362. That is your margin, 3,000*l.*?—Yes.

(*Dr. Lindley.*) Rather more than 1,000*l.* an acre.

363. (*Chairman.*) Then there are these additions at the ends; that seems essential; I will ask you that. For the carrying this plan out well, and fit for the situation where it is now, if it were to be made into a covered garden, it would be necessary, as I understand you, to add to the ends of the building these places adapted for the purpose?—Yes, it would, my Lord; it is absolutely necessary. And also, in the estimate I am going to give you, I have estimated for the entrance from the Kensington Road, for setting down.

364. First let us have the two ends?—I have not got that separately.

365. Then it is the two ends and two entrances?—Yes. *This is an exit* [*referring to the plan*].

366. There is an entrance and an exit, I understand?—Yes.

367. What do you estimate that at?—£32,000.

368. For two new ends; an entrance and an exit?—Yes.

369. (*Sir W. Cubitt.*) Is that on the south side only, or is there one from Rotten Row also?—No; they do not want one from Rotten Row.

370. (*Chairman.*) £32,000 for the three additions?—Yes; that is for the three.

371. Now we have got it up to 52,000*l.*?—Yes.

372. Then the total estimate for preparing it for its purpose would be 52,000*l.* Would that include the towers and chimneys?—Yes.

373. And all the boilers, and everything?—Yes. Have you not seen the view showing the appearance of those towers?

(*The Chairman.*) No.

(*Sir W. Cubitt.*) I have not.

(*Dr. Lindley.*) Nor I.

(*The Witness.*) I have a drawing of it, which I can send for. If you have a messenger, I will send to Devonshire House for it at once.

[*The Witness sent for the drawing.*]

374. (*Dr. Lindley.*) In the 5,000*l.*, or the 10,000*l.* for groundwork and walks, and so on, do you allow anything at all for plants?—No. I put the plants down in that 3,000*l.* for contingencies and other things. I do not apprehend that a great sum of money would be called for for plants.

375. (*Chairman.*) According to the estimate you have now given us, I understand, taking Sir Charles Fox's price at which the building could be purchased, the cost which he adds for making the roof permanent, and the 52,000*l.* which you give as the cost of preparing it for the purposes of a garden, the whole will come to 143,000*l.* First there is 65,834*l.*, 26,000*l.*, and 52,000*l.*; that is about 143,000*l.*?—That will be so.

376. Then I wish to ask you whether you propose in this plan that the whole building should be devoted to the purposes of a garden, or any portion of it set apart as a museum of any kind?—I think you might appropriate parts of it for a museum. The galleries might be used, as they were in the time of the Exhibition; various geological specimens and botanical specimens, and a variety of things; anything you choose indeed might be very nicely arranged, and be well seen. It would be a very excellent place for them.

377. (*Dr. Lindley.*) Is any of the statuary at Chatsworth kept inside the great conservatory?—No.

378. Not in the great conservatory?—No; in the green-house next to the statue gallery there is some.

379. That is a place with a stone floor, and plants in tubs?—Yes.

380. In such places the fine statuary does not suffer, or become green, or affected by the atmosphere in any way, does it?—No; it is the same sort of thing that we should keep here. But they would suffer directly if they were put in the great conservatory.

381. That is the question. The great conservatory at Chatsworth is like what this would be, except being warmer, is it not?—Nothing of the sort. I should keep this building as a cool building. The temperature appropriate for a garden, without making it moist.

382. What I meant was this; you will have an atmosphere here which, except in the heat, would not be very different to the atmosphere at Chatsworth; not heat, but water floating in the air; would you not be apprehensive that statuary would suffer from damp?—I am satisfied it would not, as I propose to keep it.

383. Your opinion is that it would not?—I know it would not.

384. (*Chairman.*) You would not, I suppose, place valuable statues where they might be exposed to injury by the gardeners in getting to the plants?—I should endeavour to arrange them so as to keep them entirely from that.

385. Then with regard to the heat of the sun, would it not be necessary, if it were to be used continually, that there should be blinds over it during a great part of the year, to keep off the sun from people walking there?—In summer time, in the intense heat, no doubt it would be very hot in the centre, but that is not so much as you may anticipate; no more than it would be (if the ventilation is complete) if you were standing out in Hyde Park itself. It would be kept there just as cool as on the outside.

386. (*Dr. Lindley.*) You would have it more cool?—No doubt but that you might shade a part of it with one of those large covers. I should shade it from the inside; not the outside. For any purposes of that kind I should never put blinds outside.

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387. But in order to provide blinds for so very large a surface as this building presents?—We never put a shade upon the great conservatory at Chatsworth; there never has been a vestige since it was made. I never saw the use of doing it. It is an expensive, troublesome, break-neck thing to put up a shade. I should certainly only shade a certain portion. You might cover half an acre where you put particular objects; but in general I should never think of it. You would have the shade of the plants in some positions of the building, which would answer all the purposes.

388. How many years would it be before the shade which the plants are to give would be produced?—Oh, very soon. You know perfectly well the eucalypti, and the Australian acacias, and things of that kind, run up directly. I should say in about three years.

389. In three years?—Yes.

390. You would plant the building with these very rapidly growing things, to be afterwards removed?—Yes; you might cut them down. I should not be surprised if they grew up in two years. They grow from fourteen to twenty feet in a year.

391. You do not contemplate any outlay for plants; because if there is any material outlay for them it would affect this estimate?—I say I have no doubt, supposing it were done, you would have a large number given. They have a great many large Australian plants at Kew which they do not know what to do with. There are vast numbers all over the country which are of no use to people, because they have nowhere to grow them. It is the little specimens that are of value; not the great ones. I know they would be given directly people heard of this building. When we were building the great conservatory at Chatsworth we got numbers of plants which never cost the Duke anything, except a little for carriage.

392. (*Chairman.*) You do not put down anything for the additional ventilation the building would require?—I put that in the 32,000*l.*

393. The 32,000*l.* will include the ventilation?—Yes.

394. (*Dr. Lindley.*) Do you ever grow turf in the conservatory at Chatsworth?—No, we have not; we have in the orangery next to it.

395. Where the statues are?—Yes.

396. How does it do there?—Pretty well, but not of course so well as it would in a better situation.

397. You have to renew it?—We have; but that would not be the case here. If you had turf, of course under the dark spread shade of the trees it would not grow very well. Wherever you want it, you must put it on open parts; but turf would grow there perfectly well. The great difficulty of growing grass in foreign countries is not so much the warmth as it is the drought at certain seasons of the year. There is no doubt about the grass growing.

398. They cannot grow grass in the Jardin d'Hiver, Paris, I know; and they have moisture enough there?—First, they have no turf, to begin with; and they cannot grow what they have not got; there is not a bit of turf round Paris. They put this lycopodium instead of it, and a very pretty thing it is.

399. To go back to the question of plants—because I cannot but think it is possible that there might be a considerable expense, considering the large area of eighteen acres, of which twelve would have to be planted—at what average distance do you think these plants would have to stand?—If I had to do it according to my notion, not one half of it would be appropriated to plants.

400. Suppose you say nine acres?—Not one half, in reality. I propose to make the plants an assistant part of the decoration; part and parcel of a great thing. I do not consider plants to be the principal object in view; but I should take them as being very effective. I certainly would not appropriate the whole to plants.

401. But suppose you take half. It would cost a large sum to plant nine acres with camellias, for instance?—It would, if you had to buy them.

402. But they are indispensable, are they not, camellias and rhododendrons?—When I put forth that project I had letters from every part of the country offering to give plants for it. I had scores of letters from people saying they would be glad to do it.

403. But unless they were handsome plants, you know, they would be worth nothing?—Well; suppose you put a sum down.

404. It would take nearly 5,000 plants, ten feet apart, to plant ten acres?—Suppose you put them down at five shillings a piece, that would be plenty.

405. But these minor matters, if they are small, must affect the general totals in so large a thing?—Then you may understand, as to the question of plants, that I have put very little down for them; and I should be inclined to say it would be very little, with the exception of carriage.

(*Dr. Lindley.*) I think those are the main points in respect to the conversion of the building.

406. (*Chairman.*) There is one thing I should like to ask before you go to the maintenance; whether, in considering the large portion of the year that is very dark in London, you would propose that any arrangement should be made for lighting the building during that portion of the year?—I should like to see that very much.

407. To see it lighted?—Yes, I should.

408. Considering that in the winter afternoons it is dark very soon after four, you think that would be desirable?—That would be one of the things that I should very much recommend; that of lighting it up for the people to go in till ten or eleven

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o'clock at night; and a very beautiful thing it would be. Many people cannot get away till a certain hour, therefore it is very desirable; and if well lit up it would be an enchanting place at night; all the statuary and plants would show off extremely well; it would be most perfect; it would become an illusion almost. I only wish you would let me have the building to give a ball or two in it for the charities of London; you would see how I would light it up.

409. You have not considered at all what would be the cost of lighting it?—No, my Lord; I did not go into that; but that would be as easily ascertained as possible; very easily; and that is a thing that you can get better information on than you can from me; but it would be a most perfect thing to do.

410. Would it not be almost a necessary thing to do, considering the large portion of the year that is so dark?—I think it would. I should say so.

411. (*Dr. Lindley.*) Now the next point we wish to know is, your opinion of the annual expense of keeping this building up?—Altogether my estimate is 12,000*l.*; the same as I put it in the pamphlet. 2,000*l.* under Fox and Henderson's.

412. What does that include?—Keeping the building in perfect repair, painting, superintendence, labour, and every expense that ever can be brought against it.

(*Chairman.*) I should like to go into that.

413. (*Dr. Lindley.*) Yes; that is the point. We have an estimate from Fox and Henderson for keeping the place in a state of repair for a certain sum. The question is what are the heads of expense which go to make up that 12,000*l.* Perhaps you will put in that paper?—I have not brought the details of it; but I can send you that.

414. You can tell us about what the items are?—I estimated, I think, the building at something like 5,000*l.*, and the whole of the other repairs and other things about 7,000*l.*

415. Fox and Henderson have offered to keep it in repair for 5,000*l.*?—I have never spoken to them about it, but that is what I thought.

416. (*Chairman.*) 5,000*l.* for keeping up the building?—Yes, and then 7000*l.* for maintenance, for every item of expense connected with it.

417. What are the items? Labour?—Labour and superintendence.

418. Labour and staff?—Yes; labour and staff. Then there is warming.

419. Fuel?—Yes; fuel. Then that also contemplated keeping small birds, which I should still recommend, fitting up aviaries for song birds, and the feeding of those birds, and attention to them. I think that would be a very nice thing in the building. Then there is buying gravel and soil, and all sorts of contingent expenses connected with a large place of that kind. I have gone into that with very great accuracy, and I am perfectly satisfied I am right.

420. (*Chairman.*) How many permanent labourers had you thought of in that estimate?—I cannot tell you now; it is impossible to remember the whole of it. *These* are only summaries [*referring to papers*].

421. (*Dr. Lindley.*) In this 7,000*l.* do you include purchase of plants for decoration; perishable plants?—Yes; perishable plants, to be renewed, and all that. I consider as soon as it is started you begin upon that expenditure, and it is always necessary to keep the place in an efficient condition, and to renew it.

422. You assume in the quantity of labour that water is laid on all over the building?—Yes.

423. That you assume?—Yes.

Dr. Lindley. Is that the case, Sir William?

Sir W. Cubitt. Yes.

Dr. Lindley. Everywhere?

Sir W. Cubitt. Yes; it is all round the outside; and there are sixteen pipes, I think, coming into the building, with stand-pipes at the end of every one.

Chairman. We have not put down anything for the water.

424. (*Dr. Lindley.*) You do not include the supply of water?—Yes, certainly; that is included in the 7,000*l.*

425. And fountains?—Yes, and the supply of fountains.

426. But in the 32,000*l.*, which is part of the cost of conversion, do you include the construction of fountains?—No.

427. Therefore fountains would be an extra?—Certainly. I should say that my notion is that of its being of a self-sustaining character; and I am sure you would get a very large amount beyond what this would be, and you could appropriate the surplus to the annual improvement of the place, by buying statuary, fountains, and things of that kind.

428. (*Chairman.*) You propose that, although it is in a public park, it should go on the principle of persons paying for entering?—You know my notion was to throw it all open at once; but I proposed, from what I had been given to understand, to make it a branch of your establishment, because I am afraid you would find great difficulties about it if it was not self-sustaining. I propose to have the admission on certain days exceedingly cheap, and season tickets, the same as before, so as to let all classes in, even those who could afford only a penny. On Mondays you might open it at a penny, on Tuesday, and so on, a little more; and then on another day you may have it private for the aristocracy, at a higher price. This would give all classes the means of seeing it properly, and also pay for the cultivation of it. If you ask me what I should like to see, I should like to see it thrown open totally free, altogether.

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429. You see the Exhibition was only for a few months, a temporary thing ; but if this were a permanent establishment, the question of payment would have serious objections which do not occur as to a temporary building?—I do not know, my Lord ; I think you would make it a very much finer thing in the end by payment, because you would have such a very large surplus over the expenditure that you might spend a very large sum of money in buying works of art.

430. But that reasoning would apply equally to the British Museum?—No, I think not. This is a thing that may be made most attractive, and people would be satisfied to pay a small sum to go into it. I do not think they would object to it much.

431. (*Dr. Lindley.*) What would your notion be of season tickets, or annual tickets ; as to the cost of them?—I really have not gone much into that.

432. Because the effect of them would be this, that if there were no getting into the building without them, and they were required by the more wealthy inhabitants, it would be tantamount to levying a tax upon them for going into the building. An inhabitant of Belgrave Square pays nothing for going into the Park ; but if he must not go in as he pleases it must become a tax upon him?—It is equally a tax upon a man at Liverpool.

433. It is a tax upon everybody, but especially upon those in the neighbourhood?—Because they use it more. The man at Liverpool comes to London, and pays more when he goes ; while the man in Belgrave Square goes fifty times, and pays less. He has in fact the advantage.

434. (*Chairman.*) You have not considered the price of season tickets?—I believe I have gone even into that, and if you like I will send you that ; but I do not remember exactly.

435. In that 7,000*l.* that you put down for the establishment and staff, and renewal, have you considered the police that would be required?—Yes ; I make all the gardeners policemen. I make all wear a uniform dress, and they are all policemen.

436. Do you mean that you would choose policemen for gardeners?—No ; I would bring up the gardeners to look after the place, and by giving them a little more wages and a particular dress (not a policeman's dress) I would make them in fact policemen. They would have then individual and distinct places to look after, just as the police who attended in the Exhibition.

437. Do you not think there should be a certain number of policemen?—There might be some outside, but very small. I think I put in six in my estimate ; six regular policemen besides the others.

438. (*Sir W. Cubitt.*) The police are a very costly article?—But there would be no necessity for them ; these men would be as well. Indeed nothing could be better ; they are the appropriate people to attend to it.

439. (*Dr. Lindley.*) They could not live on the spot ; there would be no accommodation for them?—Not in the building.

440. You would require a guard at night?—To a certain extent ; but it would come to a very small sum.

441. Still it would cost something?—You have your Park attended to, and a very little beyond that would do it.

442. (*Chairman.*) There is not much in the Park ; there are some policemen. The gates are locked at night?—So would this place be.

443. (*Dr. Lindley.*) But if it is kept open till eleven at night?—You would not do that all the year round. That would be on certain occasions, or certain nights in the week. But I have made a very large cover for this with my 7,000*l.* I can give you a dozen policemen nearly in that. I am quite positive about that.

444. Probably you can let us have the particulars of that 7,000*l.* I think that is very desirable?—I made it up at the time I made up my pamphlet, and I dare say I can find it ; and if not I can go over the same thing again, and no doubt I shall have the same results.

445. (*Chairman.*) I suppose you would heat the building by warm water?—Yes. I may mention that if you wanted to set aside a part out of the galleries for any exhibition of moderate size,—not like the great Exhibition,—it would be a very good place for it.

446. (*Dr. Lindley.*) There is in the rear of the building, on the side next Rotten Row, a space which was the machinery court?—Yes. I propose taking away all that.

447. (*Sir W. Cubitt.*) The materials of that would go to make good the open courts?—My plan is to make the building perfect in its outline and character.

448. (*Dr. Lindley.*) Otherwise could not that part of the building be used with convenience for preparing plants, and for a hospital for plants ; a storehouse or dépôt, from which they could be taken, and into which they might be removed when they cease to be objects of attraction?—It is the worst part of the building for it. If it were on the other side it would be exactly the place.

449. Still, as there is so much light in it, I should think it might do?—There is a great deal of light ; but for a hospital, I think that might be a very little distance away. I think, to make the thing beautiful, and to make the Park complete, and give it all the effect that would be necessary, and to improve Rotten Row, it would be very desirable to take away that piece ; and then, I think, if you treat it as a permanent building, you ought not to make it a one-sided one.

450. (*Chairman.*) These proposed additions at the ends I see are 112 feet one way and 150 the other. These fore-courts you think sufficient for all the purposes of preparation

of plants for the building?—Yes; for unpacking statuary, and everything connected with it; quite large enough for all those purposes.

451. Do I understand from this plan that you propose a drive through the building?—No; I would rather not have anything in the building; but if you wish to have a drive round it you can.

452. I thought you did, from this plan?—Yes, I do, in these plans. It gives you an opportunity of doing this.

453. Upon the whole you think it is not desirable to have a drive or ride through the building?—Well, it is a very balanced question with me. I must confess in many respects I should like to see people driving and riding round it in winter time for exercise and amusement; it would agree better with my notions of it than it would otherwise. Still, for the purposes of the plants and the public, there might be some question whether that would be the best way; it is rather a balanced question.

454. If you made a ride you would have to put up a high fence to protect people on foot from the horses?—One good strong iron rail along it would do; and my plan is to sink the ground for the drive, so that you would walk above them. I sink it something like two feet six all round, and use the material for the walk, and by that means there would be sufficient protection from the horses, and it would put people on a talking level with the horse people.

455. If a person were thrown on a violent horse, it must be so fenced that the people might be protected?—It would be so; I propose to do that. I cannot help thinking it would be rather a nice thing to see people driving round there in cold weather.

456. (Dr. Lindley.) The drive shown in this plan [*referring*] is twenty-four feet, I suppose?—No; forty-eight feet.

457. That would be in fact under the side galleries?—No; it is through the refreshment courts [*explaining on the plan*].

458. (Chairman.) These great shafts would have to be built?—Yes; and glazed. I propose to put glass outside, so as to take away all appearance of the bricks and mortar. Those would be put up for the warming and ventilation, and the general circulation of the atmosphere, and there would be a tunnel all through *here*.

459. Underground?—Yes.

460. (Dr. Lindley.) And that is included in the 32,000*l.*?—Yes.

461. (Chairman.) Partly, I suppose under the head of heating apparatus, and partly groundwork?—Yes. Although those items are put so, they would have to be done together very much; the two things would be carried on together; to do it properly and economically, the groundwork and the heating apparatus should all be going on at one time.

462. (Dr. Lindley.) That is, in fact, part of the groundwork, clearly; that excavation for the tunnel?—Yes.

463. (Chairman.) As you spoke of taking money at the doors for admission, and for annual tickets, have you considered at all what you would get at that low rate of a penny?—I think, in my calculations, I got very much—too much. I never could get little enough; I never could get it down to any moderate sum. What I tried to bring it down to was something like 24,000*l.* a year, which would give you 12,000*l.* a year to spend for new decorations, buying up the best works of art wherever they might be, and adding every year to the interest of the place; I apprehend this thing would be so self-sustaining that you would save that 12,000*l.*, and you would want a constant supply to keep up the excitement.

464. You think that unless it goes on improving the interest in it would flag?—To the extent of realizing 12,000*l.* it would never flag. After the London season, for instance, in the excursion season, for country people, it would be a great attraction. Country people do not make London an excursion; that is rarely or ever done; but if this plan were carried out they would do so, as they have done this year. The country people would get the benefit of it, and they would come up in large numbers. And I believe if you were to canvass the railway companies to-morrow morning, and say to them, "Will you give us 8,000*l.*, or 10,000*l.*, or 12,000*l.* a year to keep this building up?" I believe they would do it.

465. (Dr. Lindley.) What would be the consideration to them?—Merely the people they would bring up to see it.

466. You think that would be satisfactory to them, and they would require no other consideration; the mere fact of such a building existing in London?—Yes, and being such a fine thing as it should be; I have no doubt they would do it. They have volunteered, some of them, and I know they are very anxious for it; that is, all the companies that come into London.

[*The witness produced and explained the drawing of the building sent for by him as above mentioned.*]

467. (Chairman.) These towers are of brickwork?—Yes; these are brick towers for the ventilating shafts, and they are all covered with glass. I propose to burn coke in the building. This would be covered, so that there would be no appearance of brick or stone about it.

468. (Sir W. Cubitt.) Then for 200,000*l.* you might bring out such a building as that drawing shows, ready for use?—Yes.

469. Do you keep the roof flat as it is at present?—I leave the roof as it is, only putting it in repair.

470. (Dr. Lindley.) Some persons have suggested that a roof like that of the transept ought to be adopted through the centre.

Sir Joseph Paxton.

28th Jan. 1852.

(Sir W. Cubitt.) Mr. Barry proposed that ; but it could not be done in the time, nor at the cost. I admit it would be beautiful.

(The Witness.) That affects the first answer I gave you to-day. The circular work requires a longer time and is more expensive ; the flat work is cheaper and more simple.

471. (Chairman.) But for a permanent and beautiful effect the circular roof has a great advantage?—Oh yes ; and I have got a new arrangement altogether for that.

472. Now, if we gave you an order to design an entirely new building, what do you think you could make it for ? Then you would be at liberty to deal with Fox and Henderson's for any of the materials, and make an entirely new building, according to the best plan you could devise?—To let the present building be sold, and have the materials?

473. To deal yourself with the contractors for the present building, and the Government not to meddle at all. Suppose the Government said this : " That they wished to have a garden of this kind," and gave you directions for a plan and estimate, you would then know,—as Messrs. Fox and Henderson have not sold the building, and the Government not meddling with it,—you would probably be able to deal with them for the materials?—A considerable quantity could be used.

474. And you know pretty well now at what price they can sell it?—I do not know. Perhaps you would let me have that. It is a very important question to ask me to answer, and I cannot answer it without some consideration ; but I have no doubt part of that might be brought in again ; the columns for instance, and so on. Part of it would come in, and part would not.

475. You would then, as I understand, adopt a circular roof?—I have got a different appropriation of roofing ; a different combination of roofing altogether. In the building for New York it is all circular inside and all angular outside, and the opening is larger than the transept of this building. It is all angular outside, and it makes a gallery for walking on outside as well as inside. Like the Exhibition Building, it can be added to to any extent.

[The witness made and explained a rough sketch of the design submitted by him for the building for the Great Exhibition at New York.]

476. (Dr. Lindley.) Your slate roof in that building was necessary, I believe, in consequence of the snow?—Yes ; but I have made it very ornamental outside.

477. Yes ; it is a very handsome looking building?—And I have been thinking it over, in preparing this American design, that we can hardly see to what extent this principle will go hereafter. It will be available for a great variety of purposes. I am sure we shall make churches of it before long. I do not mean that we shall make churches of glass ; but we shall make churches in this manner, and of dry materials. Churches are now always damp in consequence of their being occupied only one day in the week ; but if they were made entirely of dry materials,—iron, slate, and glass,—there would be no damp from non-appropriation, and you might warm and ventilate them for the day. That would be done cheap, and I have no doubt it will come into use in a very little time. I will leave that drawing here, if you please.

(Sir W. Cubitt.) The towers are a great improvement to the building.

(The Witness.) The ends would be perfect. It would be a very great improvement, and the building would be a very beautiful ornament to the Park.

The witness withdrew.

Adjourned.

ESTIMATE for keeping up the CRYSTAL PALACE as a WINTER GARDEN, &c.

REPAIRS AND RENEWAL OF BUILDING.

Painting and keeping in good repair - - - *4,000

MAINTENANCE OF INTERIOR.

General staff for superintendence - - - 1,000

Labour and police - - - 3,500

Supply of water and food for birds - - - 500

Fuel and attendance to warming - - - 1,500

Renewal of gravel - - - 500

Contingencies - - - 1,000

£ 12,000

N.B.—This sum is mainly for the maintenance of the plants, the walks, the gravel, and the interior and exterior of the building.

In addition to this, a sum varying from six to ten thousand pounds per annum will be required to make it perpetually interesting, by providing fresh objects of attraction, such as statuary, fountains, reliques, plants, birds, &c.

Making in round numbers - - - £20,000

* Not having the details of expenditure with me when I was examined before the Commission, I mentioned £5,000 for this item.

Chatsworth,
2d February 1852.

(Signed) JOSEPH PAXTON.

Fourth Day.—Friday, 30th January 1852.

Present.—LORD SEYMOUR in the Chair.

Sir WILLIAM CUBITT. Dr. LINDLEY.

JOHN KELK Esquire was called in, and examined.

John Kelk, Esq.

30th Jan. 1852.

478. (*Chairman.*) I believe you are a proprietor of land that is nearly opposite the Exhibition Building?—I am proprietor of some houses there.

479. Were those houses built by yourself?—Yes.

480. Can you say how many houses?—I built eleven, and I have sold five.

481. That was some years ago that you sold them?—The last two were sold at the beginning of the year before last.

482. At the beginning of 1849?—Yes, between Easter and Midsummer.

483. I think when the Exhibition was talked of, you represented that it would be an injury to your property?—I did.

484. Has subsequent experience confirmed your opinion?—Decidedly. I have not sold or let a house since; on the contrary, I have absolutely lost the sale of two if not three houses. I can mention the names of the parties. Colonel Macpherson, a gentleman living in Lowndes Square, a friend of my bankers, was very sorry to lose one; he has been since to see if the building was to come down; and the other was Mr. Hibbert, a merchant in the city. In fact the agreements were signed.

485. When you first entered upon the speculation of building houses there, was that gate which is called the Prince of Wales's Gate opened?—No, my Lord; the Halfway House was standing.

486. Then the opening of the Prince of Wales's Gate was a great benefit to you?—Undoubtedly. I paid 1,500*l.* towards it.

487. In order to have an opening towards the Park?—Yes. I paid Mr. Elger 1,500*l.* as my share of the expense of removing the Halfway House and forming Prince's Gate.

488. And this was done with the intention of having a view of the Park from your buildings?—A view and an entrance. I would not have built the houses there at all but for that.

489. (*Sir W. Cubitt.*) Does that feeling still continue?—Most decidedly.

490. (*Chairman.*) Are you acquainted at all with Mr. Elger's property there?—Yes.

491. That joins yours?—It is a similar row; on the other side of Lord Listowel's land.

492. Have you communicated with him lately to know if he is of the same opinion as when he sent a representation to me on the subject?—I am quite sure he is.

493. And would concur with you in considering the continuance of the building an injury to his property?—I am quite sure of it. I have seen him, and he would have been here to-day, but is obliged to be out of town.

494. Do you think that if the Exhibition Building were applied to any such purpose as had been proposed, namely, if it were converted into an ornamental garden or any similar purpose, making it a resort for persons to walk there for seeing plants, or for seeing antiquities or any other objects of interest, that that would not compensate for the existence of the building?—No. I would sooner give 2,000*l.* or 3,000*l.* than it should be kept up. My property will be entirely ruined if that building stops there; I should not know what to do with it.

495. No conversion into a garden or anything of that kind would be otherwise than very detrimental to your property?—I feel strongly that it would, and I do not think for many reasons that a garden could ever be kept up decently; and if it were, people living in that class of house would only do so for the sake of the view, and for the exercise of their children in the Park; they do not wish to live before such a building. Everybody that comes there says it is of no use till the building comes down. Several people have been about the houses lately, but they want to know what the fate of the building is to be. That is only till lately, because all last season I do not think we had four people, and I had to keep a clerk and a watchman and a gardener there. If it had been kept away three months, I should have sold every house I had.

496. (*Sir W. Cubitt.*) You heard some time ago that this Commission had been appointed?—I did.

498. Yet, knowing that, and making inquiry among your friends, there has been no communication with the Chief Commissioner; you have sent no memorial to the Commission, nor made any attempts to explain what you had to say?—Before this Commission, do you mean.

499. Yes?—Some two or three weeks ago, I mentioned to Lord Seymour that I should be glad to be examined, and I wrote to Lord Seymour some time ago.

The Chairman. I had a memorial from Mr. Elger and Mr. Kelk last summer.

499. My question went to the point, that the appointment of this Commission was really announced very freely and publicly in the papers, and I thought that the parties, if they were very much aggrieved, would at last have memorialized the Commission, and

John Kelk, Esq.

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stated their grievances ; but it does not appear that they have done so?—I did memorialize his Lordship. I memorialized the Royal Commissioners ; and I thought I had done enough to let them know my feeling. When I saw that this Commission was composed partially of the same gentlemen as the Royal Commission, I thought I should be troubling them unnecessarily, as they would know my opinion in the matter from former memorials.

500. We might have hoped that time might have changed your opinions?—My opinion of the building is, that it has answered its purpose admirably ; but I do not know what you can do with the building ; there must be a great deal of money spent on it before you can do anything with it.

501. The Royal Commissioners do not want to do anything with it?—There must be an immense deal of money spent on it.

502. (*Dr. Lindley.*) Will you tell me what the precise reason is why you infer that that building interferes with the value of your property ? Is it simply because it obstructs the view, or is it because of the great concourse of people it brings together?—I think principally in taking away the Park ; taking away the grass and trees, and the air ; because it is like building a street.

503. You do not attach much importance to the great number of people it would bring?—I do not suppose there would be many. At the time of the Exhibition it took three quarters of an hour to get from Hyde Park Corner to those houses ; and if it were similar to that it would be very detrimental.

504. Supposing the building were much improved in appearance, would your opinion still remain that it would be disadvantageous to your property?—Decidedly.

505. Under all circumstances you would object to it?—No building that you could put there would be advantageous to my property, no matter how handsome.

506. Would not a very handsome building be less detrimental?—I really do not think it would.

507. (*Chairman.*) Are your best rooms built for the sake of the view towards the Park, or towards the gardens on the other side?—They are built to look towards the Park ; so much so that they are almost different to any houses in London ; for instead of making the length of the front drawings the length of the house, I have made the front the width of the room ; the room is considerably deeper than it is wide ; showing the value I attach to the view of the Park.

508. (*Sir W. Cubitt.*) There are more rooms fronting to the Park?—Yes. Instead of giving so much land to make wide frontages, I have given a narrow frontage and an increased depth. I never did that anywhere else, and I have been building houses on speculation all my life.

509. (*Dr. Lindley.*) Do you happen to know what the feeling is of those gentlemen who occupy houses in that neighbourhood, not being your tenants, with whom you have had no relations in the sale of houses?—I never met a single gentleman living in the neighbourhood who was an advocate for it ; not one. The approval of it has been chiefly by Lord Listowel, who does not consider it detrimental to his property ; but it is only right that I should state that his interest is very trifling, and his rent is all secured by our buildings as ground landlord, so that he cannot suffer, come what come would ; and I understand that when his son is of age he intends selling the fee, so that in two or three years time he will have less interest, and the ground rent will fetch just as much, whether he is there or not, because the ground rent compared with the value of the houses is small.

510. (*Chairman.*) Is there any other point you wish to mention, as to your interest?—I think I may as well state that I have lost a great deal of money in the shape of interest ; I wish to state that I have lost at least 5,000*l.* in the shape of ground rent, interest, and attendance.

511. From not having sold?—A large part in interest alone ; there is rather better than 30,000*l.* unproductive.

512. Do you sell the leases for long terms ; 60 years?—90 ; upwards of 90.

513. You take the ground of the ground landlord, and build the houses, and sell them for a 90 years lease?—Yes. First there is the ground rent paid to Lord Listowel, a clerk, watchmen all night, and gardeners to keep the garden up. I have lost at least 5,000*l.* in interest, and so on ; and then again, when a thing of that kind hangs so long gone off, people begin to wonder what is the matter that these houses have not

514. You think it throws discredit on the property?—I do ; a sort of slur. The thing was going off as fast as ever it could. It would have been the best thing I ever touched.

515. Do you think there are no other faults in the houses ; for instance, any faults in regard to drainage?—I have not heard of any. The drainage is beautiful ; it could not be better. As far as I know, there is no fault ; I have not heard of anything.

516. You have no belief that there is any other cause that has prevented your houses going off, except the Exhibition Building?—Not the slightest ; every body who sees them gives us great credit.

517. Is there no objection to the price?—If the building goes, I must put the price up to get my 5,000*l.* back. I sold three houses of the same size, and the last I sold before it

was decided that the Exhibition should be put up I got 300*l.* more for than the others. That was from Captain Fitzmaurice. I told him I had sold the other houses for so much, and that I wanted 300*l.* more, and he gave it to me. They are all fire-proof. There are not many houses in London built like them; they are entirely fire-proof, with stone stairs and brick floors, from the attic to the basement. In fact they are built as well as I knew how to do them. In such a situation I thought they deserved to be done as well as they could be.

The witness withdrew.

EDWARD HAWKINS Esquire was called in, and examined.

John Kelk, Esq.

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E. Hawkins, Esq.

518. (*Chairman.*) You are at the head of the department of antiquities in the British Museum?—Yes.

519. And you have held that situation for many years?—Yes, nearly thirty years.

520. And in that time have you observed that the interest the public take in collections of antiquities has greatly increased?—Yes, very much indeed.

521. Then you think it desirable, with the view of meeting the taste and feeling of the public upon these questions, to go on adding to the collections of antiquities at the Museum?—Certainly.

522. Now is there not a great difficulty at present in the Museum in finding space for the collections that are coming here?—Yes; the Museum is much too small.

523. More especially when we collect such antiquities as the Lycian and the Nineveh collections, which take a great deal of space for the accommodation of what may be a small class of antiquities?—It requires a great extension of space for the proper display of the antiquities in the British Museum.

524. For the purpose of showing those antiquities, without reference to the ornamental character of the building itself, do you think the rooms you have at the British Museum are such as are very well adapted for viewing these objects of art?—No, my Lord; certainly not.

525. The rooms are ill-lighted, are they not?—Very badly lighted in many respects. The new room which they are about building I hope and expect will be, and the Elgin room is, well lighted.

526. But the objects to be shown have been very much sacrificed to the architecture of the building?—So far that there is not a proper light to exhibit them.

527. That improper light was made to give a classical character to the building?—Yes, I fancy it was. In fact I think the original conception of the building was a mistake. The Grecian style is not the style for the Museum. We want the greatest possible quantity of light, the greatest possible variety of light, and a variety of spaces, large rooms and small rooms; and the Greek style is that which admits of the fewest apertures, and the smallest apertures; those apertures must be equal in size and equidistant, and the style of architecture is less capable of adaptation to circumstances than any other.

528. Have you considered whether, with a view of obtaining more space, it would be advisable to take advantage of such a building as the Exhibition Building?—I have considered the present Exhibition Building as a mere case, and that you would have to construct a new museum if you move it there,—an entirely new museum,—of it or in it. I do not think it would be any saving of expense in attempting to adapt that building for a museum. You would then relieve the museum; but if you take any of the antiquities you must take them all. You must not separate the different antiquities;—the coins, the medals, the bronzes, the vases, the sculptures,—all must go together; and the library too; for the best collection of antiquities would be almost useless unless you have access to a very extensive library. Everything in the department of antiquities must, I think, go together. The chain from the earliest specimens of art to the very lowest is continuous; they could not take any portion without breaking the chain, and destroying the evidence of comparison, and the means of tracing the progress of art.

529. Now for the purpose of mediæval antiquities you have hardly any space at all at the museum?—We have at present more room for mediæval antiquities than we want, but it is because the collection has only just been commenced. There is one large room.

530. One room which you mean to appropriate to that purpose?—Yes; there is at this moment a skeleton arrangement of mediæval antiquities. If I may be allowed to mention it, it is intended prospectively entirely to remove the ethnographical collection, and that room might be appropriated to an extension of the mediæval collection. It is quite clear the ethnographical collection is too large to be attempted in our present building.

531. You have said that if the present Exhibition Building were to be adopted it would require very great alterations?—I should say a total alteration. In its present state it is exceedingly ill adapted to our purpose.

532. Do you believe a glass building is not suited to your purpose?—It would require a great modification, and smaller and larger apartments. We do not want a large general diffusion of light; we want partial light.

533. And a variety of rooms, as I understand?—Yes, a variety of rooms.

E. Hawkins, Esq.

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534. So that persons studying or going to see vases or medals or coins should not be interfered with by others who are studying the sculptures?—Yes, and each requires a different arrangement of rooms and a different arrangement of light. Then, again, we want some parts very strongly fortified, where the coins and medals, and gold ornaments, and other things of intrinsic value, would require to be well protected, and we want to be very dry also. Some of our objects would perish or suffer extremely by damp.

535. (*Sir. W. Cubitt.*) We have not found in this building any ill effects from damp?—No.

536. (*Chairman.*) At present your antiquities are lighted by skylights?—Yes; all the upstairs rooms.

537. Then the roof of a glass building might at least be made as secure from accident or rain as those skylights?—Undoubtedly, it might.

538. Now what police is there, can you tell me; what guard is there left at the British Museum at night?—There are sixteen soldiers about; sentinels; and that is all the protection we have at night.

539. Have you not a watchman going about at night?—A watchman walks round. He does not go through the building. The rooms are visited once in the course of the night. About nine o'clock the messengers go round to see that all the lights are out.

540. (*Sir W. Cubitt.*) There is no constant internal watch?—A watchman goes round every hour, and there are sentinels; sixteen soldiers placed round the building all night.

541. (*Chairman.*) Upon the whole you think the Exhibition Building could not be adapted, without a total alteration of its character, for the purpose of receiving antiquities?—I cannot myself believe it would save one single sixpence in expense in the adaptation; in fact, it would be as costly as an entirely new building.

542. (*Sir W. Cubitt.*) Built for the express purpose of doing it in the right way?—Yes.

543. (*Dr. Lindley.*) Do you think that although the present building might be unfit for the reception of antiquities, a building constructed of iron and glass of similar character would be also unsuited for it?—I do not know. I am not competent to answer that.

544. What I mean is this; by this method of construction large quantities of ground are under cover, and the principle is expansive. You want great space?—Yes.

545. Then the question is, whether in your opinion a building constructed upon such principles, with iron and glass as the chief materials employed, would be one that would be unsuited for the antiquities under your charge?—I do not know that it would or would not; I am not competent to say.

546. You have not any strong opinion on that?—I have none to give as to construction in iron and glass.

547. (*Chairman.*) If it were proposed, in order to give you more accommodation at the Museum, to build out an iron and glass building, somewhat like the railway stations, for instance, only rather more finished in its character, with a view of putting into such a building the larger of your antiquities, should you think that a bad arrangement in connexion with the Museum?—I think an arrangement of that kind might be very possibly beneficial. It would give us in fact light and spacious galleries.

548. (*Sir W. Cubitt.*) There is one peculiar feature in the Exhibition Building; it covers a large space; eighteen acres on the ground floor, and that can be divided into any number of rooms of any size, being multiples either way of 24?—That I comprehend. It is a multiplication of similar parts.

549. You may have a thousand rooms of 24 feet square, or 24 by 48, or 48 feet square, or any number divisible by 24?—Yes, that I understand.

550. And they may be separated by partitions, either for safety or sound, and lighted from the top, or from any side?—Yes. There is one point of view in which it might be a desirable thing, and suitable to the original design of the building; and that is, to have there a perfect collection of casts of all objects of art in our collection. That would be an exceedingly valuable thing, as a branch of the Museum, and an assistance to artists. But that, I think, has been already before you.

551. (*Chairman.*) Without putting in the antiquities themselves, which you would rather keep at the Museum, you think such a building as this might be very useful for the purpose of casts?—Exceedingly useful; forming a collection of casts would be very useful indeed. I think the originals should be kept more as a scientific collection, connected with all the other branches, coins and medals, vases and small bronzes.

552. (*Sir. W. Cubitt.*) You think a modern work, exactly like the original, would do just as well for the purposes of artists?—Not quite; but I would have there a cast of every well-known statue in Europe.

553. My remark was “*exactly* like” them (if you can have casts exactly like any one of the antiques); if they were exactly like the originals they would be equally useful for the purposes of artists?—Yes, supposing you could get them exactly like them; but there is the material and a great deal more comprised in perfect identity.

554. Identity and similarity are different things?—They may be similar, but not the same. There is the effect of time and age on the surface, and other differences.

The witness withdrew.

HENRY COLE Esq. was called in, and examined.

555. (*Chairman.*) What has been your connexion with the Exhibition Building; perhaps you will just state that?—I have been a member of the Executive Committee of the Royal Commission.

556. And as such you have been from the first acquainted with and taken an interest in the building?—Yes; I have watched it from its commencement; from the setting of the first column up to the present time.

557. Now, the building having answered its purpose so admirably for the Great Exhibition of Industry, you have, I believe, some suggestions to make to this Commission for its future uses?—Yes. I entertain a strong opinion that it might be made auxiliary in the promotion of a great number of useful public objects.

558. And in order to make it auxiliary to those objects is it essential that it should remain where it is, or might it be equally auxiliary to those objects if removed elsewhere?—Assuming that an intention which is much talked about exists, of the National Gallery going westward, and the possibility of its being connected with other institutions, my opinion is, that the building only in its present site would be auxiliary in that direction. Your Lordship is aware there is a talk about industrial education in a variety of ways, and some expression of a wish existing to connect that object with the National Gallery and the School of Design, and you would lose great advantages in respect of several public objects for which the building would be useful if you removed it away at the present time. I say at the present time, because I think that the building furnishes a positive and practical link between these several public objects and the Great Exhibition. The Exhibition being, in the eyes of the public, a very great success, and being expected to lead to many important consequences, I think if you sweep away the building just at the present time you will destroy the existing means of encouraging a great number of useful results. Those results, I believe, will appear at other times; but we all know how slow public opinion is to be formed in this country; and when you have once got hold of a right public opinion it is as well to keep it, and make the best use of it that you can. If it were not making my answer too long, and going too much into detail, I would say, for example, that there is a great want of covered space; in fact that nothing but the want of covered space prevents your having a number of those institutions which exist in foreign countries with great advantage, and of which this country is miserably destitute.

559. When you speak of the advantages of a great extent of covered space, would you specify a little more distinctly to what purposes you propose that that covered space should be applied?—First, I should say that already in the covered space of the Crystal Palace there exists the nucleus of a trade collection; of a collection illustrative of trade; an object which the merchants of London are beginning to be actively interested in. You have already, by the contributions of exhibitors, upwards of from 8,000*l.* to 10,000*l.* worth of property there, given by about 800 exhibitors, and the Royal Commission has promises from at least 3,000 more, besides expressions of willingness from the majority of the foreign countries that exhibited to add to that collection. It seems to me that immediate measures might be taken for carrying on the extension of that collection, and the methodical arrangement of it, provided only there were sufficient covered space somewhere to arrange it in. In the Crystal Palace you have the covered space. If you take away that, it does not occur to me where at this instant you can get any other covered space.

560. You mean there is now in this building this collection?—In the building. It remains there, by sufferance of Messrs. Fox and Henderson, till the Commissioners resolve what is to be done with it. I think if the building were in the possession of the Government, and if a portion of the building itself, being in the possession of the Government, were devoted to the maturing and getting together this trade collection, you would immediately have one public object gained. If this collection be taken out and stowed away somewhere else, the subject will slumber, and the advantages arising out of the present beginning will be postponed for a considerable time. If I carry that idea on, I should propose to connect the building with an institution in which your Lordship takes an interest, the Museum at Kew.

561. I should wish, before you go to other points, to understand a little more distinctly what you mean by a trade collection. Do you mean that all things that are objects of trading between one country and another are to be collected there?—I mean that a collection of specimens of all classes of objects, whether in raw materials or the manufactured products, should be made, and should be opened for the information and inspection of the public. You have at Vienna, for example, a trade collection. Any novelties whatever in raw produce are at once sent there, to be inspected, handled, tried, and proved to be good or bad, and at all events thoroughly examined. You have there a collection of all the examples of the products of manufactures from all countries. I believe that the Austrian Government purchased the whole of Whitworth's finest machinery for that trade collection, and intend to deposit it there.

562. (*Sir W. Cubitt.*) From the Exhibition?—From the Exhibition; and within the last few months I had an opportunity of looking over the collection at Vienna, and I found examples of every species of manufacture, such as the finest specimens that could

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be collected of the application of leather, the finest specimens of calico dying and printing, and everything bearing upon human industry.

563. (*Chairman.*) Do you suppose now if a foreigner wished to send to this country for an order for cotton goods that he would send a person to the trades collection in Hyde Park, rather than to the great manufacturers at Manchester?—I think if he wanted any specific object his interest would lead him to that manufacturer who best supplied it; but if he wished to see at one view a collection of specimens illustrative of the best works that numbers of persons were doing he would have great advantages in going to a collection of that kind, and that he would go to it. For instance, if any discovery of a new material, such as gutta percha, were made, the place where people have been hitherto accustomed to go to make it known is the Society of Arts, and the subject is more or less made known in that way; but if the substance were sent to a merchant or a broker in the city, you would have him object. They say, "It is not known in the market, or does not command a price," and question its use and value. Even alpaca wool, now employing thousands of weavers, was a "drug" in the market, until Mr. Titus Salt proved its value a very few years ago.

564. (*Sir W. Cubitt.*) They would tell him what answered their pecuniary purpose?—Yes. The result is, that there is very little opportunity of bringing a valuable discovery at once before the public; and my notion is that if an institution existed where every one who had made a discovery was enabled to exhibit a specimen, and where, as a matter of trade, people would go to see what these specimens were, good, bad, or indifferent, great public benefit would result.

565. (*Chairman.*) But take, for instance, gutta percha. The attention of the public was first called to it comparatively few years ago?—Very few.

566. Has there been any want of knowledge or of attention on the part of the enterprising portion of the public in applying gutta percha to every sort of purpose, since that time, do you think?—I am not able to say how much sooner the public would have got gutta percha by an institution of this kind, but they did get the first knowledge of it through the Society of Arts; but I can answer the question on want of knowledge by referring to another point, which is, the introduction of Claussen's flax-cotton. Claussen is now almost fatiguing the public with this invention; and it seems that Lady Moira some 60 or 70 years ago went through precisely the same set of experiments, and she failed. The flax-cotton turned out to be worthless, and the spinners refused to use it; and, so far as we can see, Claussen is going over precisely Lady Moira's ground at this time. Now if you had any institution where any one who fancies he has got an invention could apply, and ascertain what had been done before, both the inventor's time and public patience would be saved, and general intelligence would be benefited.

567. For the purpose, however, of ascertaining whether experiments, such as the mode of making or preparing flax-cotton, have been fairly tested before, you must have very careful records of all the experiments?—Certainly.

568. There must be an establishment where books must be kept, or some notes taken of all the experiments that have been tried; or else, for the want of some very small point, that which failed at one time will succeed on a subsequent occasion?—Certainly. There is also another element. The public may be ripe for a subject at one time and not another; but the bearing of all this is, that we find it useful to preserve as well as we can records of the past with reference to future use; and that is one of the points on which I think a trade collection would be extremely valuable and important. I believe that if there were space to make this trade collection you would at once assemble from all parts of the world an abundance of specimens of useful things of which we know comparatively little or nothing. I believe that the collection would benefit in fact every analogous existing institution. These already establish the point that the principle of the thing is right. You would have specimens of minerals used for trade purposes sent, which would in one point of view be extremely useful to the Museum of Practical Geology; then come the fibres and vegetable materials, which would be useful to the Kew Museum; and specimens of manufactures which involve art, which would be useful to the School of Design.

569. You have spoken of the collection of Whitworth's machinery that you saw at Vienna. Do you suppose in a few years time there will not be great improvements in machinery of that kind?—I should hope there would.

570. Therefore a collection of machinery, put in a depository at the present time, ten years hence would be looked upon as antiquated rubbish, would it not?—I am not quite prepared to affirm that.

571. (*Sir W. Cubitt.*) The machinery you speak of, are all kinds of tools, and the proceedings now going on with regard to these "strikes" will cause great improvements in those things?—Very likely.

572. (*Chairman.*) And therefore they are of great interest?—I found at Vienna a most beautiful collection of tools of all kinds; tools for making watches, for book-binding, for all kinds of stone-work; in fact, specimens of tools from all countries, and of all the modes of using them; and these, as I was given to understand, were perpetually used and made the subject of lectures; they were the *materiel* of the lecturers on mechanics, and pregnant with suggestions.

573. Assuming it were advisable to have a depository in which there should be collections of machinery, collections of mineral products, and collections of articles which are matters of trade and commerce between one country and another, do you not suppose that wherever these are collected there must be rooms for attendants to stay with them, and give information to persons who came there for the purpose?—Unquestionably; and I would not have it supposed that I think the present building is by any means the most suitable place; but you have got the present building, and the sympathy of the people with the subject; you have got the covered space; and temporarily I would take all the advantage I could of those circumstances. I should use a portion of the present building at once, to encourage the world to send us specimens, the most perfect, of all branches of its industry; and having that space, the collection would be amassed with little cost.

574. But if you have a collection of machinery, you must have a superintendent or some one living on the spot to show and explain it?—Most certainly; and I would particularly say, that to have a mere collection to be looked at, without being worn out in the use of it, I should regret excessively. A mistake we make with our collections and museums is, not to use them.

575. For that purpose it is necessary that there should be living rooms where a superintendent could stay during the day-time?—Certainly.

576. That would require a fireplace and other conveniences which people are accustomed to in a living room?—Certainly.

577. Then the present building would require great alterations before it could be adapted to this variety of purposes?—Certainly; but I would hardly propose to connect these more permanent structures with the present building. I would use the building *qua* collections as a sort of warehouse, and do the best I could till the public gave the sympathy and support necessary to get the most suitable building.

578. But would the public be satisfied with keeping it up as a warehouse till you got a better?—Yes, I think they would, decidedly. If the public were thus taught to appreciate the variety of collections I should like to see preserved for a time in Hyde Park, they would support you infinitely more in granting the necessary sum for providing a permanent place than if you drily told them your intention of making these permanent places, and asked them to encourage the necessary expenditure for furnishing them.

579. Your other wish; that of the means of proving articles; when you speak of proving articles, do you refer to chemical tests, or mechanical? The strength of articles, or what sort or mode of proving?—I should say of all kinds. Chemical tests, which I think might properly be a department of the Museum of Practical Geology; engineering tests, which might be part of the business of the Institution of Civil Engineers. Scientific tests of various kinds; at present we have all kinds of loose talk about the strength of materials, and their useability, but there is no kind of authority to which we can absolutely appeal as having pronounced a verdict on the subject. The world are now disputing about hydraulics and sewerage; but there is no kind of positive decision as to whether one person or another is right.

580. Do you think this great mercantile country, who are accustomed to leave everything to enterprise, would be satisfied with the dictum of such a society, when established?—I think they would always take the dictum for as much as it is worth. I have an abhorrence of a popedom in manufactures or anything of the kind; but there are points I think on which authoritative opinions may be expressed, and the public will be very glad to have them, and value them for as much as they are worth. Here is a question now, apropos, as to the water with which London is to be supplied. The public would rather like to have an authoritative dictum, if they could get it, as to what was the best water, and where it was to be got from; and from such an institution as I have glanced at, you would get that.

581. Would the scientific men belonging to such an institution give a better opinion than the men not belonging to it?—All would be very much aided by such an institution. You have the germ of it in one of its phases in the Museum of Practical Geology, which is getting on very popularly; and I am only looking to the extension of the principle of that museum.

582. The Museum of Practical Geology attends strictly, as its name imports, to one branch of science; but you wish to make a museum which should combine every scientific investigation that could be possibly connected with the welfare of mankind into one building?—I would collect into one building the examples; but I would delegate to the special institution the examination and test of those examples. I should look to this trades collection as an important auxiliary to Sir Henry De la Beche's Museum, extending the use of that tenfold, furnishing it with examples which probably it would never otherwise get, and with matters that perhaps would never come before his cognizance, for various reasons,—want of space, want of means, and other reasons. In all this I would say, let the public do this entirely for itself. I believe if Government will find the space and encourage the beginning, in time the public will find not only the articles but the space with very great willingness. I do not point in this, to the Government undertaking any museum of this kind. It might be done by private enterprise, and supported on the merits of its use to the public.

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583. I understand you to mean that the Government should buy the Exhibition Building, and place it at the disposal of some commissioners, or some society, who should make it a great repository or warehouse?—Not that they should *buy* it at once. I would guard myself against that. I should like to see them, as the building is in a hypothetical position, lease it until something better can be done.

584. (*Sir W. Cubitt.*) That is supposing the building to remain where it is?—Yes.

585. (*Chairman.*) You wish the building kept, and the Government to lease it?—Yes.

586. With the view of keeping in it this collection till a better place can be provided for it?—Yes; and with other views.

587. Because you do not contemplate, for the multifarious purposes you speak of, that the building would be suited for them eventually?—That is a matter of experiment. I should hardly like to say it would be found the most suitable. Besides this trade collection to which I have pointed, I should like to see the building aid the nucleus of an archaeological museum.

588. You wish to see antiquities there?—Yes, certainly.

589. Do you think the building suitable for the purpose of an archaeological museum?—Very much better than none at all, and at present we have none. We have been crying out for such a collection for years, and one reason we do not get it is, that there is no place to put the things in. I should like to see the present opportunity seized for beginning this matter which the building offers. On that point, I should like to put in evidence some resolutions passed by the Archaeological Institute at their meeting last year at Bristol.

590. If you please?—[*Reading.*]

“ Resolutions adopted by the section of antiquities at the annual meeting of the
“ ‘Archæological Institute of Great Britain and Ireland,’ at Bristol, August
“ 1851.

“ 1. That in the opinion of this meeting great assistance might be afforded to
“ persons engaged in archæological studies by the formation of a complete
“ collection of copies of the most admired and instructive sculptures of all ages
“ and nations.

“ 2. That such a collection ought to consist of copies made in metal, plaster,
“ terra cotta, or any other material, and principally taken from statues, busts,
“ urns, vases, candelabra, bas reliefs, friezes, cameos, and intaglios.

“ 3. That although such a collection might be made with great ease and at
“ a comparatively small expense, and could not fail to be highly attractive to
“ all spectators, although it would afford the most important aid, not only to
“ all scholars and artists, but to many classes of manufacturers, and would
“ tend greatly to the refinement and elevation of the public taste, and although
“ similar collections have for these reasons been made in many of the great
“ capitals of the continent, yet this country is without any collection which
“ deserves mention in reference to this question, and that this great deficiency
“ in our national institutions has probably arisen from the want of a building
“ large enough to receive such a collection.”

I believe in reference to that, that if a portion of the building were appropriated to this object, you would have the English public manifesting an eagerness to contribute to the collection, and presenting most valuable specimens, and in the course of a few years you would have it surpassing the collection in the Green Vaults at Dresden, which perhaps is the finest in Europe. In reference to another point, I may observe that the British Museum seems to me thoroughly choked up with what it now has; so much so, that I believe there is a prospect of spending 200,000*l.* more in enlarging it. I think this building is most especially adapted for certain parts of the collection of the British Museum, as suggested by Mr. Dilke; all those sculptures which naturally belong to out of doors are not out of doors, on account of our climate; they would be far better seen in a building as light as possible, and one that most nearly resembled out of doors. The Nineveh and Elgin marbles, and that class that are in the Museum generally, would, I think, be improved by being put in an open lightsome building. Another point is, that not only is there a great want of room at the British Museum, but, being in the midst of London, the sculptures get so begrimed with dust, smoke, and dirt, that their beauty is very much impaired. That would be certainly modified to a considerable extent by removing them further westward.

591. I should like to ask you, on the subject of the archaeological collection, do you think it desirable that the collection of antiquities in the British Museum should be kept together, or do you think it desirable to subdivide them?—I think the greatest advantages would arise from their subdivision.

592. If, for instance, a person is studying the age of any antiquity, or of any sculpture, he sees some character upon it which he believes may assist in fixing its age, and he wishes immediately to refer to another, which may not be by any means of the same size or kind, but which may have the same character upon it, and perhaps belong to the same age, it is an advantage, is it not, to have the means of comparing them,—to have the two objects he would wish to refer to in the same building?—It would be some advantage. I do not know whether your Lordship points to the division of these several

collections; but my view was, that all the out-of-door statuary and sculpture of the British Museum would be much better if it were in a light building than in the present building. Therefore I do not point to the dispersion of its collections, or the division of them.

593. But almost the whole of the statuary of the British Museum would in that case be removed, it being at least very doubtful if it were not originally all out of doors; at least it only stood in former times in porticoes or open places of that kind?—I should like to see the whole of the art of the British Museum taken away from the British Museum.

594. If then you take the sculpture, should you not take with it the ancient vases?—I think that might be desirable.

595. If you take the tomb you must take the urn connected with the tomb?—I wish the British Museum adopted that plan; but they arrange the tombs in one way, and the urns in another. I should be glad to see the authorities holding your Lordship's faith, and putting the two together. At Berlin you have the two things brought as nearly as possible in juxtaposition as they are supposed to have been originally; and that is one of the advantages of having great space at your command; you could have something like a scientific and historical arrangement. At present the bits of tombs are down in the basement, and I do not know where; and the vases are upstairs in other rooms, as distinct collections.

596. Then if you see sculpture on a tomb, and wish to fix the age of it, it might be useful to refer to the coins of that day?—I think those more elaborate *savans* that wish to trace these points are very few; and I think they are so exceedingly precise in their observations, that any one of them who wished to carry out that system of archæological research would make such notes as enable him to go upstairs or downstairs at the present time, in the same manner if the objects were separated, and he had to go from one part of London to another. At present, practically, if he wishes to pursue that kind of study, he must wander over a great variety of rooms in the British Museum, and I do not think his studies would be very much impeded by having to go from one part of London to another; added to which, I think he would get great advantage from improved arrangement, which would adequately compensate him for having to go a distance to get at it.

597. Is there not a great advantage in the books connected with antiquities being near to the antiquities?—Very trifling indeed. It is a theory, but I do not much believe in it.

598. For the purposes of study, do you not think it is an advantage to see the books on the sculptures that are collected in foreign countries while you are examining the sculptures you have at the Museum?—I doubt if there are six people in England who pursue that investigation. The learned officers of the British Museum themselves, no doubt, find it very convenient, if they are investigating the age of a statue, or the points about it, to send for a book from the library; though they complain that they cannot easily get the book. Obviously it is a convenience; but the case is so extremely rare that it does not affect the public at large.

599. Is not the object rather to advance a knowledge of these details than to gratify the public at large by letting them go about and gaze at these works, without understanding them?—Not in my opinion; I think not, unquestionably. The learned few will take any amount of trouble, and no doubt it may be very proper to afford them all kinds of facilities; but my own belief is that you had better take all possible means of interesting the great public, rather than make your arrangements for the exceedingly learned few.

600. Another place you wish to relieve apparently is Kew Gardens?—I have been brought lately into communication with Sir William Hooker, who is excessively eager to get all he can out of this nucleus of a trade collection, and he is impressed with a strong conviction that he would get a great advantage from being able to secure all he wishes. That was with reference to a trades museum at Kew; but I think if instead of making that museum at Kew it were in the neighbourhood of Hyde Park, and if advantage were taken of this building for the purpose of at once extending its action, the general object would be greatly promoted.

601. Do you not think there is an advantage in having the dead specimen of a plant in the herbarium near the living specimen in the garden?—There is unquestionably an advantage; but the advantage of having this collection nearer London, where the bulk of the people could see it, and could hear lectures upon it, would greatly overbalance that other advantage. I am not blind to the advantage of having the living and dead specimens in contiguity, but still I think the advantage of being nearer London is much greater.

602. Do I understand that you do not contemplate any garden in connexion with the great repository of botanical science that you wish to have near London?—I should be very glad to see a garden if it were a practicable thing.

603. You are speaking of the Exhibition Building as a temporary repository while something upon a great scale is getting ready?—Yes.

604. In that therefore you look to collecting all the museums together which are now scattered in different places?—And which are very much troubled for want of room.

605. You wish, for instance, to bring what is in the museum at Kew up to Hyde Park,

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if I understand you?—During this temporary arrangement I should hardly recommend that; but instead of making fresh buildings at Kew I would have portions of this large building for increasing the collection, which I look forward to coming nearer London than Kew.

606. Do you not think subdivision is an advantage? If a man is studying geology, he goes to the Museum of Geology, and gets his information; if he wishes to pursue some point in botany, he goes to Kew. What advantage is there in obliging all persons to go to one place for their different kinds of knowledge?—As regards the science of specialties it is of little importance whether they are separated or not, but as regards industrial education generally, the greatest advantage will arise from placing before the students as much as you possibly can. You hardly know where your blows strike, and it generates a large and philosophical mode of looking at all cognate objects. To a person who is abstractedly a chemist it matters little where he makes his study; but I think that one with a less precise object, and whose destination is likely to be acted upon by accidental circumstances, gets an immense advantage from seeing the greatest variety of analogous matter in the smallest compass and with the greatest ease.

607. You do not think people would be bewildered in going through this great museum containing everything, first a room with botanical collections, and then a room with antiquities?—I think idlers would be; but if you had to devise an university where instruction upon these matters was to be given, a great advantage would arise from a lecturer having to send only to this part of the building for such and such objects, and to another part for others; and that leads me to the advantages of bringing together the museums of the Museum of Practical Geology and the School of Design. To the Museum of Practical Geology you would thereby add very properly, as the culminating point, fine specimens of manufacture in glass and iron, all of them having attributes of fine art about them. Now it is quite obvious that Dr. Playfair, if he has to talk about the perfection of the glass manufacture, would get a great advantage from the most beautiful collection of glass specimens which he might find in the museum of the School of Design, and the same in the case of a lecturer on the artistic portion of the subject at the School of Design.

608. In the one you would show design and colour, and in the other the constituents of the manufacture of the article?—Yes; which involve colour and may involve form.

609. Do you not think there would be great objections, for the purpose of the students, to taking the School of Design so far off as the Exhibition Building?—That is of trifling importance. A large and improved management of the School of Design would contemplate a separation of elementary instruction, and the rudiments of drawing from applied instruction to manufactures. I hope to see the day when we may have drawing schools in all the parishes of England, or nearly so; and I hope these elementary schools will be the feeders of a higher school in London, and perhaps in some important provincial towns where a higher class of instruction applied to art and manufactures may be given. If you have a central establishment in London, and you bring your students from the country, it matters very little to them whether your School of Design is at Hyde Park or in the Isle of Dogs. If half of them come from the country, it cannot matter to them.

610. Who are the students who go the School of Design now; do you know at all?—They are people engaged in manufactures,—the majority of them are youths,—but another proportion of them consists of artisans and persons who are engaged or interested in various ways in design. I think it is not unlikely that perhaps the School of Design may be shortly separated into these two classes. I think the site is not a matter of much importance to those who study the higher branches.

611. It is a matter of importance to be near where they live, is it not so, for the great mass of people at present going to the School of Design?—They come from all parts; and unquestionably the centre of London, Somerset House, is a convenient site; but it has disadvantages. It has the disadvantage of not having any plants adjacent to it, which are very important for a School of Design; and it has been a complaint for years and years that want of room is impeding the operations of the school. In this balance of advantages and disadvantages it must not be forgotten that there would be a considerable advantage in having an easy means of consulting, and rather an inducement to consult, the National Gallery. The physical necessity of the case, I apprehend, is likely to cause the National Gallery to be removed out of the smoke of London; and that being a settled point, it would seem that considerable advantages would arise from putting the School of Design near the National Gallery. I would hardly call it the School of Design; I would rather say the College of Design, if it were not too fine a term.

612. Do you mean that any portion of the Exhibition Building should be made into a school of design?—If I were free at once, I would at once apply a portion of that building for teaching specialties connected with the School of Design. Already, there are the purchases which the Government have sanctioned to the extent of 4,000*l.* or 5,000*l.* packed up in the building, and we do not know how they are to be used without finding space for them. I should like to see a certain portion at once applied to them. It would be of the utmost practical advantage; and the more inconvenient the place, if the collection were made really serviceable to the public, the more the public would cry out for a better place,

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if they became disposed to support the collection. At present the chances are that these specimens must be taken to Somerset House, or hidden somewhere or other.

613. Then, if I understand, you would establish it in the present Exhibition Building, with such a consciousness that it is unfitted for it, and that the outcry of the public would lead to a better?—That is a little stronger than I put the case; but I am prepared to say that the present building is a great deal better than none; and the more its imperfections were seen, and the public interested in the subject, the more eager they would be to support the preparation of a better building. I should like to put in this passage on the necessity of increased space for the School of Design. The Committee of the House of Commons that sat three years ago reported as follows: "They have to call particular attention to one subject, which requires immediate notice; namely, the great importance of providing better accommodation for the head school than at present; a subject which has been repeatedly brought forward, and cannot be too strongly insisted upon. Complaints have been made as to the want of accommodation at Somerset House, as well as at the house temporarily hired in the Strand for the female pupils." This is now, I believe, in Gower Street. "The collection of casts and other beautiful and instructive works of art in the school is thereby rendered almost useless, and the development of the institution is in several respects seriously retarded." I believe this institution would be greatly developed by having a small portion of the Exhibition Building; and I think this matter of its improvement, which has been talked of for the last twelve years, would be immediately carried out to some extent.

614. Then you would divide off a portion of the building, and adapt it for the purposes of a school of design?—Yes; I would do that immediately.

615. And that would require rooms for the directors and other persons in connexion with it?—It would require a certain amount of accommodation; but anything is better than nothing.

616. Fireplaces, and so on, for living there?—I am not prepared to say it would require any person to be living there, but it might be better; I do not know that it is indispensable.

617. Whoever is at the head of it must have his living rooms there, in which he would be all the daytime, to attend to the pupils?—Certainly.

618. Therefore it would require considerable alteration of the building?—A modification of a portion, to adapt it to this purpose.

619. Have you considered at all the cost which the public would have to pay? You propose that they should lease it, as I understand?—Yes.

620. On a seven years lease?—Yes; with a power to purchase, if they thought fit.

621. But to take it even for a seven years lease, it would be desirable that portions of the building which have been only prepared for a temporary purpose should be made more permanent; some accommodation for those seven years must be required?—Yes. I apprehend that several years must elapse before the National Gallery can be placed westward, or anything else connected with it; and in the meantime nothing would be done, unless you avail yourself of this opportunity.

622. You stated that the School of Design should be near plants. Now, how do you propose to combine the plants which are necessary for the School of Design with the school of design in that building? Do you contemplate having the plants inside the building?—No; I only meant that if the School of Design were placed westward there would be a much greater facility for getting botanical specimens in the neighbourhood even of the Park itself.

623. From being nearer the gardens?—Yes; and some little pains might be taken to have plants there. You cannot have them at all in Somerset House, but you might in Hyde Park.

624. (Sir W. Cubitt.) Or even in the building?—Yes. The practice has been for Sir Wm. Hooker to send up specimens, which he has kindly done; but they die quickly, and that plan is found not to get on very well.

625. (Dr. Lindley.) You say you do not think the students of the School of Design would be deterred from going to the Exhibition Building because of its position?—Not at all.

626. Are you aware that application was made some years ago to the Horticultural Society for the admission of some students of the School of Design to their garden, for making drawings there?—I was not aware of it.

627. That was so, and permission was freely granted; but it has scarcely ever been taken advantage of, which I have always supposed must have arisen from the distance; but when you compare the other side of London with Hyde Park, you may almost take into comparison Hyde Park and Chiswick; an omnibus would be necessary either way?—I walk in Hyde Park a great deal; but I am not able to afford the time to ride or walk a great deal at Chiswick. But I should like to meet that point, by saying that I believe the students of the School of Design have made use of Kew Gardens to a considerable extent. One of the students, who produced a carpet, was heard to say, "I got that magnolia from Kew Gardens, and it has been worth 80*l.* to me."

628. I only wished to mention that permission was sought at Chiswick, and has been made very little use of?—Hyde Park unquestionably would not be so inconvenient

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as Chiswick ; but the question to be viewed, as it seems to me, is, which affords the greatest amount of public advantage.

629. (*Chairman.*) With respect to your opinion of the economy of beginning at once, it would appear from what you say that the economy results in this, that the public should lease this building for seven years, in order to make these collections attractive to the public, so that the public will require afterwards to have a more extensive establishment built?—They will afterwards desire a more extensive and better establishment. I think there will be a positive economy at the present time. Take the case of the British Museum. If you moved out of the Museum even the mineral collections, you would stave off for a long while an expenditure of several thousand pounds, which you must incur, unless the Museum is to stand still, or the things are to be concealed in the cellars.

630. You would move out the whole of the mineralogical collection from the British Museum?—Yes ; I should not hesitate to move that out instantly, and that would produce an immediate economy ; I dare say you might economize 50,000*l.* directly ; and the minerals would be much better seen, and not be liable to take any damage in such a building as that at Hyde Park, if it were rendered water-proof, which I always assume it would be.

631. Some portions of the mineralogical collection are very valuable?—You mean as gems? Possibly so ; but you will recollect we have had the most valuable thing in Hyde Park already. I do not think the Museum would have anything so valuable as the Koh-i-noor.

632. There were a great number of police there also?—Yes ; more than perhaps was necessary.

633. If a collection such as the mineralogical collection of the British Museum were brought there, proper means must be taken for its custody?—Certainly ; but I do not think there would be any greatly increased means required beyond what already exist at the British Museum.

634. Are you aware what means do exist there now?—I have a general notion about it.

635. Do you know what sort of watch there is there at night?—I am not acquainted with the details of the night watching.

636. If those collections were in the Exhibition Building, being of glass, and of the character that it is now, it would require vigilant attention, would it not, that it might not be robbed at night?—Yes ; but I think the glass is rather an advantage than otherwise. I do not suppose that the transparency of the materials would be any temptation. It is like a gas lamp ; the lighter it is, and the more people are seen, if they have any improper design, the better.

637. Yes, in the daytime ; but the difficulty is at night ; and if you left the building with no other protection than there is at the British Museum, which is only some soldiers at the gates, would that be sufficient for the protection of such a collection?—I think two or three policemen would do all the duty that is necessary.

638. How many were there every night at the Exhibition?—We had about fifty, I think, inside the building.

639. Would you not build up any solid wall for the sake of preserving any of these things?—No, I think not.

640. (*Dr. Lindley.*) Do you not think it would be much easier for thieves to find their way through the thin sides of this building than the walls of the Museum?—Certainly, in one sense.

641. And therefore more means would be necessary externally to prevent it?—No ; I do not much believe myself in that danger. No doubt a stone wall gives a little more trouble ; but we do not hear now much of robbers getting through either stone walls, or boards, or even glass. I do not see much difficulty in managing the safe custody of a glass-house.

642. The question would go to the custody of certain valuable public objects in it, which are inaccessible in the British Museum, but which would become more accessible in the Crystal Palace?—They would be, perhaps, a little more accessible ; but I think if you had practically to deal with such articles they would be quite as secure as in the British Museum. You had the Portland Vase smashed in the British Museum, but nobody would adduce that as an instance of an article that was not sufficiently taken care of ; such things are always liable to be mischievously dealt with.

643. (*Chairman.*) The Portland Vase was broken by some person who was out of his mind?—I should say certainly he must have been. I think it was proved that he was a lunatic ; that is very different to a robbery at night. Of course you would watch the building, and there would be some increased expense, but it would not be very great.

644. For the purpose of the geological collection, you think the building very well adapted?—Extremely well. The geological specimens are in cases already ; and if they were in the galleries it seems to me they would be exposed to no damage of any kind, and that there would not be any very serious amount of liability to loss from depredation.

645. (*Sir W. Cubitt.*) For the numerous purposes which you have suggested, would the building be equally applicable, supposing it were removed from Hyde Park to some other place?—I cannot disconnect it in my mind from the idea of the possibility of concentrating to the westward of London a number of public institutions.

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646. Take Battersea Park?—I do not think, for the purpose of getting the National Gallery at Kensington, and other institutions about it, that placing the building in Battersea Fields would have any very direct influence. No doubt the space there might be available for many public purposes; perhaps for all of these; but if you admit the assumption that something is going to be done about Hyde Park, then by removing the building you cut off an important link to aid you in doing that something. On the abstract merits of dealing with these objects, of course one site is nearly as eligible as another.

647. But taking your list of public objects, beginning with the trade collection, and going all the way down to the promenade, which you end with, all those uses would be attainable in the building, and the building would be as well adapted to them at Battersea as in Hyde Park, and for some purposes even more, from the easy access,—the cheapness of access?—I think there is an advantage on the question of access; but I do not think the School of Design would be as well in Battersea Fields as in Hyde Park or in its neighbourhood. I do not think those collections that would bear upon the School of Design would be as convenient there; but that you might make an admirable trade collection in Battersea Park, I do not doubt.

648. (*Chairman.*) For an archaeological collection, would it not be a great advantage, when we bring winged bulls from the other side of the world, and such things, to take them up the water, and land them at Battersea Park?—It is only a question of a few pounds. You bring a locomotive of 40 tons weight to Hyde Park, and nobody knows when it is coming or going. It is only a question of mechanics. I do not think that is a very strong point. If you take winged bulls to the British Museum, you could take them of course to Hyde Park. You might perhaps take them a little easier to Battersea; but I think it is not a material item in any calculation. There is one point I have noted, which I think has an important bearing. I think if you leave the building in Hyde Park to be used and turned to its best account till you get a better building, it would lead to the thorough reformation of the whole of Hyde Park. The barracks being placed there has led to a conglomeration of petty nuisances that are quite incompatible with the public purposes of the Park.

649. Then you think if the Government undertake to keep the building they must also undertake to remove the barracks?—Certainly; and I think they would get great assistance from the public, in reforming that neighbourhood.

650. Do you think the public would pay for removing the barracks willingly?—I have not the least doubt of it, when they became aware of the improvement that might result from removing the barracks, and all those little cookshops and oyster shops, and little houses with “beds to let,” which are so numerous.

651. Would you propose that the public should pay for the local improvements of Hyde Park?—I think that the whole of the improvements of Hyde Park might be made thoroughly self-supporting.

652. In what way do you mean?—I think if you took the evidence of Mr. Cubitt as to whether or not he would take down those little houses, and lease the ground, and build better houses in their stead, I should rather expect he would say he would, and put you to no expense.

653. What you propose is, if the barracks were removed, to substitute private houses?—On the particular site of the barracks I would not put private houses. I would take away the barracks, and take away all those vile little houses fronting Knightsbridge, and as far as they go up to the Conduit, and substitute other very much improved houses.

654. That is, you would buy of the Dean and Chapter of Westminster their property, and pull down those houses, and substitute better?—I believe Mr. Cubitt made an offer to your Lordship’s predecessor, Lord Lincoln, to take down those houses about Albert Gate, and the little nest of small houses thereabouts, if the Office of Woods and Forests would consent to give him the right of doing it, and aid him in it.

655. You imagine that to be Crown property?—I believe some part of it is, but I am not certain.

656. If the houses are not Crown property, or the property of the public, and you have to purchase the property for the purpose of improving it, it must be viewed very differently from where it is public property already?—Certainly. The barracks are, I believe, public property.

657. Yes; but there you would not put houses?—I would pull down the barracks. Times are much changed since the barracks were put there. London is now guarded with 6,000 policemen; and it has become a matter of very small moment whether the life guards are in that site or any other in the neighbourhood of London.

658. Looking at it as a civil, not as a military question, you would move the cavalry out of town?—Looking at it as a London police question, and considering that you have brought 6,000 disciplined men into London, there appears the less need of the life guardsmen at Knightsbridge Barracks. Of course I speak with diffidence on that point; but that is the common-sense unprofessional view of the matter, as it appears to me. I think it is quite wonderful how patient we are with nuisances, when you look at all those little nuisances immediately adjacent to Hyde Park. The proprietors of the terrace protest against that glass-house, but they bear with great composure all the nuisances of the

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barracks, pipe-clayed breeches drying, half-dressed soldiers lounging out of window, trulls walking about, and all those annoyances.

659. But they came there with the knowledge that the barracks were there, and the idea that they were not going to be moved; but they came without any understanding that this building was going to be put up opposite to them; that makes a great deal of difference?—Some difference.

660. We should have to give them compensation?—My belief is, that Lord Campbell would be very glad to compromise by taking the barracks down opposite his house, and leave the building standing, I do not know the fact; but I think any one going to live in that situation would.

661. (*Dr. Lindley.*) Do you not think the owners of those new houses that have been built opposite the Exhibition Building, and to which the Exhibition Building came, would have a clear right to compensation for its remaining, if they could show that it interfered with their pecuniary interests?—No; I do not think they have any clear right at all.

662. But suppose they can show that the houses were readily let before the building came there, and now that they cannot let them at all, and that they have a large quantity of these houses on their hands, involving a large loss annually in the mere shape of interest, do you not think they ought to have compensation for such a state of things?—I think, strictly speaking, they ought not. They came there with all the accidents that might happen. They have no private rights whatever in the Park. They may certainly have a personal cause of complaint; but, on public grounds, I do not think they have any rights at all. Assuming the fact, that the houses do not let because the Building is there, there may be a sort of moral claim to get them out of that apparent difficulty; but I do not think legally they have any position at all.

663. (*Sir W. Cubitt.*) In one of your propositions you appear to think that keeping the building up, and applying it to these uses, would be an act of compensation?—No. I mean that answer to refer to taking away the barracks. If you take away these brick walls you would give the neighbourhood a great deal more than you have taken away by putting the Exhibition Building there.

664. (*Chairman.*) Then the economy is to provide other barracks, as well as to obtain possession of this building, which is a double expenditure. You spoke of the economy in the arrangement by beginning now?—The economy is in the amount of public use you get out of the building, as you would save in the British Museum. That it would lead the public into an expenditure of some two hundred thousand pounds or so is very likely, but the advantages are so great that I think the public would applaud the outlay.

665. But while you are saving the British Museum additional buildings, on the other hand you necessitate a provision being made for new cavalry barracks?—Yes, certainly; and a very desirable arrangement for the public, I think.

666. I do not know, when you speak of leasing the building, whether you have considered what would be the annual cost at all?—No; that is a question that especially belongs to the contractors.

667. You have not gone into that?—I am not able to do that; but I think it would be a much better arrangement for the public, to pay even a handsome rental for the temporary use of this building, than for the public to purchase it, taking it at the rate of purchase that at present exists.

668. (*Dr. Lindley.*) Do you imagine anything like the rental they would ask for keeping it in repair; doing all landlords repairs?—Roughly speaking, the position is of this kind:—Messrs. Fox and Henderson want 65,000*l.* to purchase it as it stands, and would charge 25,000*l.* for making it water-tight, and putting it in thorough order, making 90,000*l.*; they then propose to charge 5,000*l.* a year, or something like that, for keeping it in good condition. Now 10 per cent. upon 90,000*l.*, supposing we take 10 per cent., would be 9,000*l.*, and that, added to the 5,000*l.*, would make a rental of about 14,000*l.* a year; and very moderate, I should say, for setting all these desirable public objects going.

669. You do not contemplate any portion of such supposed rental being paid by the building itself, in consequence of the purposes to which it is to be applied?—That depends on how the Government are disposed to view the matter. I apprehend the Government must be the lessees. It is for them to determine whether the public should have all the advantage of this building without payment or not. They might determine on a kind of middle course; that a certain portion should be public, and a certain portion placed in the hands of societies or institutions, to turn it to the best account they could. In that case, if they turned it to a self-supporting account, it would be quite reasonable for the Government to say, "We require a certain rental from you for the use of this."

670. (*Chairman.*) You have taken the building as it now stands, and maintaining it in its present condition. When, however, you apply it to these various purposes which you have assumed, it will require considerable alteration and internal adaptation?—Considerable alteration. I do not think that would be very costly. Indeed I think that if the building were divided by glass partitions in various parts, looking to the cost of the glass of the building as it stands, which is about 18,000*l.*, a great deal might be done at a comparatively moderate cost. I should not contemplate much brick and mortar work, if indeed any.

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671. Then you would contemplate the Government renting the building, and then getting a rental for different portions of it from different societies?—It is possible they might do that. Whether they would think it, on the whole, best to do that, I am not able to say.

672. Would not the public complain if the whole of that building were made permanent in the Park, and given to different societies?—Not if the public had the full advantage of it. You have a parallel case in the Zoological Gardens in the Regent's Park. They do not complain at present that a portion of a public Park is given over there to a private society, because they see they are benefited by being able to enjoy the collection by paying sixpence, and so they would feel in this case. If they could go to a fine archæological collection, or a fine collection of sculptures, or otherwise, in that building, they would feel it an advantage to have it by paying a moderate price for it. It would be a much greater advantage to have the privilege of going there at a moderate price than of walking on the bare grass in that part without paying anything, I think.

673. (*Dr. Lindley.*) You think societies might be found to rent portions of this building? To what societies do you particularly allude?—I think if that trade collection were considered a desirable thing, and if that were placed in the charge of the Society of Arts, the Society of Arts would not be indisposed to pay for the accommodation the public would get out of it.

674. Abandoning their house in the Adelphi, or in addition to it?—In addition.

675. The Society of Arts is peculiarly situated with reference to the Exhibition. What other society do you think would do so?—You might get a revenue from the exhibition of modern sculpture. That perhaps is hardly to be connected with any existing society. A new society would perhaps arise out of that feature; it is a public want that everybody feels.

676. Then it would appear that these two societies would have to defray between them what would be a large rent for a society, though a small rent for the Government, which the building would render necessary?—I am not supposing the whole building would be turned only to these two purposes. If the Government agreed to make use of any portion temporarily for the School of Design then that portion might be charged to the public; and supposing part were used for the increasing collection of the Museum of Practical Geology, which already I understand is overflowing, that again might stand as a debit to the public. If you take portions of the British Museum, that is another part.

677. (*Chairman.*) You say the Museum of Practical Geology is overflowing. Do I understand that you would move the whole of that museum up to the building?—No. I think we are in a sort of transition state; we have several little bits of institutions that want more room; that would be vigorous if they had more room, but cannot continue their operations efficiently without it; and it would be a wise thing to avail ourselves of this space to enable them to continue their operations. The future development of the Museum of Practical Geology will be, I expect, that we shall get a great institution out of it. It is clear that the present building cannot be a great institution. I understand already that their operations are impeded for want of room; and they have not been there two years.

678. Is it not necessary that they should have the specimens and objects from which they give instruction near the theatre where the instruction is given?—Yes, but I think, the public mind is growing upon all these questions; and I think it would be policy to make use of this building for fostering the wishes and desires of the public, leaving the final result to develop itself as you find public feeling and public education grow. I think the Museum of Practical Geology would extend very much the sphere of its operations, if it had any space to deal with. The Kew Museum would extend its operations, if it had vacant space, at once.

679. You said that in this country there were hardly any trade collections, such as that you mentioned at Vienna?—The only thing approaching to that collection is a very small collection at the Society of Arts, and the commencement of a collection in the same direction at Kew, and also the Museum of Practical Geology; both have a number of articles which would be considered part of a trade collection. Sir William Hooker shows the flax growing, and flax in its various stages of preparation, terminating in linen, and then various specimens of linen. That series begins with science, and ends with trade.

680. Do you believe, for the purpose of promoting trade and commerce in the country, there is any great advantage in such a collection?—That is rather a metaphysical question. I have a general faith in the advantages of public education and public instruction. The exact connexion, or the proof of an exact connexion, between the use of any trade museum and commercial business might be a very difficult thing to prove. I think it might fairly be asked whether there is any direct use to art in a National Gallery. On the whole, I think it is a good thing for the public who want teaching, and it is a settled point that we have a National Gallery. I believe that art, perhaps, like trade, springs up from its own instincts and its own wants, which are all supplied in a sort of way that we may call natural. If your Lordship presses me for an opinion, I can only say, I take the world as it is. I find these institutions existing, and numbers deriving gratification at least from them: but how far they can be practically shown to exercise an important direct influence on the matters with which they are connected, is a very difficult

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question indeed. I believe both a trade collection and a picture collection teach the public, and the public knowledge influences both trade and pictures.

681. You said that other countries had these collections for the purposes of trade, and you referred to Dresden and Vienna. Observing that other countries have them, and that this country has managed to carry on a considerable trade without them, do you think it is desirable that we should now follow the example of those countries, and institute these museums in order to copy them?—I think it is; the leaning of my opinion is decidedly that it is. There is the Ambras collection at Vienna, the Green Vault collection at Dresden, the Japanese collection at Dresden, and the Historical collection there; and I think that although these appear now torpid slumbering things in Germany, our manufacturers and traders would get a number of hints from them if we had such things here; and I should very much like to see such collections made. If we try to find analogies for these things we may see how private individuals deal with them. They think it a pleasure to have bronzes, pictures, specimens of china, glass, and so on, in their houses; it gives them gratification and knowledge. And even if you view it in that light I think there can be little doubt that what a private individual has a pleasure in amassing the public would also have a similar pleasure in; I think that you find this to be the fact, that the manufacturers who know most about these collections are those whose manufactures are decidedly the best. I take a case within my own knowledge, the case of Mr. Minton. He certainly is one of the very first potters in the world, and his knowledge is extremely profound upon all that has been done before in pottery; and he himself entertains strong opinions on the importance of collections of this kind. And I would add, that his trade is a large trade, and his position is a great position, based on a perceptible connexion between his knowledge of these things and his business.

682. You think it would be valuable, for the promotion in this country of the art of pottery and china, that there should be a collection showing the manufacture from its earliest stages?—I feel quite satisfied that it would; so satisfied that I should be very willing to pay myself towards having it.

683. But there must be a museum for the purpose of the pottery and china manufacture separate, and by itself, just as there is a Museum of Practical Geology?—Certainly, a proper arrangement.

684. It is not necessary for that purpose that it should be connected with this larger and more general view which you have taken of all trades?—I think you get economy of management by having a number of things together, and you get economy of organisation and means of collection better by having them together. I think there is decidedly a balance of advantages in having them together rather than separately, if they have a common analogy.

685. Do you think it desirable to have that collection in the pottery districts rather than in London?—No; I should like to see something in both. A collection in London as a centre, which might spread out its specimens to the local seats of manufacture. I think we had better have the best things in London, where the greater number of people are. Half of all the ornamental manufactures are originated in London; that is a fact that appears in the registration of designs. You should have London as a centre, but I would establish a system by which the provinces should have the utmost advantage out of that centre; and it would not be difficult to carry that out. I think that our mistake usually in the management of these museums is, that we do not make them as useful as they ought to be made.

686. In this museum of china that you contemplate, would you include not only a collection of all the china, and the clay and the different materials that have been used, but would contemplate having any person there to exhibit the mode of manufacture; the potter's wheel for instance?—No, not at this collection. I hope to see the time when the School of Design, in teaching flower painting for china, will teach it *on* china; and when it teaches form as applied to pottery, that it will demonstrate it upon the potter's wheel: but that is an educational view of the subject that does not belong quite to the museum view of the subject. I think that the educational establishment should be so far connected with the museum establishment as to get all the aid it could, by borrowing specimens, and by showing and lecturing on them, and using them in any way that is desired.

687. And testing them?—Yes.

688. To ascertain whether they were painted well; whether the colour would stand?—Yes; I should quite contemplate that in a trade museum. As a collection of specimens to put upon shelves for people to wander about and see, it would become a dead thing in a little time; but to be made of practical use in industrial education, I can conceive it to be of great advantage; and I should like to say most emphatically that a dead collection, a mere idle collection of specimens, is not at all the institution I have in view.

689. (*Dr. Lindley*.) You, in fact, contemplate the establishment, at the same time as this trade museum, of a staff of lecturers who could explain the objects which the museum contains?—Certainly.

690. Then that would, in fact, commence from the commencement of the museum?—Directly.

691. (*Sir W. Cubitt*.) That would be of a self-supporting nature; it would require an

endowment, or admission fees?—No education could be good unless it is self-supporting, in my idea. *Henry Cole, Esq.*

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692. (*Chairman.*) It would require a theatre?—Yes.

693. (*Sir W. Cubitt.*) One of your suggestions is, that the materials of this building, the glass and iron, might cover public walks for bad weather?—I think you might so manage as not only to have a good temporary use of the building, but if the time should come when you might desire to get rid of it, it might be prudent and economical to purchase the materials, and turn them to important public uses in various ways. I was struck with that on the north side of St. James's Park the other day; it seemed to me that it would be a great advantage to the whole of that neighbourhood if they had a long glass-covered walk.

694. Down the Mall, you mean?—Yes.

695. To glaze one of the avenues of the Mall?—Yes.

696. So that they might walk under it when it rained?—Yes; it would be an inducement to come out in uncertain weather. I think you might give a great charm to many parts of London in that way; and it is quite clear it might be easily and cheaply done with these materials and this mode of construction.

697. (*Sir W. Cubitt.*) Do you not think that all the objects you contemplate could be carried out by private enterprise, the site being provided? Supposing 25,000 people were to raise 250,000*l.* in debentures at once, could not that be laid out so as to do all this, and make it self-supporting?—I think my suggestion is a step towards that. I think this building will just help the public to do that very thing. If the Government get a right over this building, and allow it to be used, that is precisely the result I expect to come out of it. But I foresee, if you take away this building, that you will have to begin more or less *de novo*. The public will say, "You want 250,000*l.*! Why, you had your building, and you could have tried the experiment. You could have begun it there. You are extravagant, and want to build for other than the principal reason."

698. (*Dr. Lindley.*) Suppose the Government were to say they would not take this building, but threw it on the contractors' hands; then comes the question, whether individuals might not be found to purchase it on the conditions you have named, because you do not contemplate that all the building should be taken advantage of for carrying out these views?—The question turns a great deal upon site. If you propose to take away the building, and do all these things in Battersea Fields, we then separate and disperse the various subjects of a great Industrial Institution, which I cannot get out of my head. If the National Gallery is not to go westward, and nothing else is to be done, then the mode in which you put the proposition is quite entertainable, and I think not unlikely to be carried out; but if you ask me, with that knowledge, whether I would try to do it on the other side of the water, I say I would not. If we could know that nothing is to be done westward, then the course is clear to try and do something elsewhere.

699. (*Sir W. Cubitt.*) Don't you think everything tends westward now?—I think so; but if you ask me whether I would take the building, and put it on some other vacant ground westward, I should pause, because though the building is admirable in many points, I should doubt about incurring the expense of taking it down and putting it up bodily. But having got it there, with a certainty that you can promote these things by using it, I would not try any experiment with the building beyond turning it to the best temporary account. Sir Joseph Paxton says avowedly, that he could make a much better building. I daresay, if he had your assistance, and Mr. Barry's assistance, and Sir Charles Fox's, and Mr. Owen Jones's, with the experience of this building, he might get a better building; but I do not think you would get a public company to enter upon that risk.

700. A public company would run the risk with the self-same means. They could have Mr. Barry, and Mr. Owen Jones, and all the talent of the country. The thing would be, a good place embracing these utilitarian objects, and I think private enterprise might do something far superior to what we could get the Government to do?—That I believe, always. But the public would say, "You ask us to spend 250,000*l.* on a building which is to do all this, and meantime you clear away this building in Hyde Park." They would say, I should expect, "We don't believe in this movement at all."

701. (*Chairman.*) To whom would they say it?—Here is a building belonging to some contractors now to be sold; and the public are to say, as I understand to a certain society, the nucleus of which is the Society of Arts, "You have got a building already." They have not got the building. In that imaginary conversation between the public and somebody else, I want to know who the parties are?—The position is, above 100,000*l.* have been spent on this building; it is proposed to sacrifice this, to clear away this building, and to try and get some other building which will carry out these objects in another place for certain public objects.

702. But if you please to remember the parties. Here is the building given up, as I understand, by the Commissioners, to be cleared away by the contractors. You come in to represent the public view, and say the building ought to be kept up. Who is to keep the building up?—If it is in Hyde Park the Government, unquestionably.

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703. The Government is to take it in the first instance?—Unquestionably.

704. But you do not look to that as a final arrangement? Some other institution is to rise up with money enough to make, somewhere else, a self-supporting establishment?—Yes; that is not unlikely.

705. That is the ultimate result you look to?—Yes.

706. The Government are expected to take this, to promote this self-supporting institution that is to arise hereafter?—And for public purposes under its charge besides,—the British Museum, the School of Design, the Museum of Practical Geology, the Kew Vegetable Museum, &c.

707. (*Dr. Lindley.*) There are two purposes,—a temporary Government purpose, and a future which is not a Government purpose?—Yes.

708. (*Chairman.*) If the heads of departments of the British Museum do not consider it suitable to their purposes, ought not their evidence to be listened to on this subject?—Yes, certainly; but if you consult Mr. Panizzi, I think you will find that he is uneasy for want of more room. The cry is, that the collection of books is stopped for want of room; and the public can judge for themselves about the Nineveh marbles.

709. Mr. Panizzi would be glad to turn somebody else out to make room for his books?—He is very uncomfortable for want of room.

710. And then if you apply to the head of the department of antiquities he would wish somebody else to go to make room for the antiquities. None of them wish to go, in fact?—I am afraid that would be very much the case, and then your Lordship's superior judgment would settle what is best for the public, without reference to private inclinations.

711. (*Dr. Lindley.*) Do you think if the Crystal Palace in its present form, or in any similar form, were removed to a place in the neighbourhood of London, say Battersea, by a private company, at their own charge, they would be able to make it pay its expenses, and the usual interest which is to be expected for such an undertaking?—That depends on the purposes to which they applied it.

712. To make it profitable, what purposes would you turn it to? It would cost 250,000*l.* in debentures to start with, and the expenses would amount to 22,000*l.* a year. How would you raise that?—The answer to that requires a great deal of consideration.

713. Do you think it could be raised by such purposes as you contemplate in a trade museum?—Not by them only, certainly. If that building were moved somewhere else it might by very good management perhaps be made to pay for itself, in a wide popular direction. It might be a reasonable experiment.

714. But it must be something much wider and more popular than your plan contemplates?—Much. To make the building self-supporting, it is indispensable that it should be opened at night. If it were made a promenade, and opened at night, that might be done with great facility and propriety. I do not mean to imply that a casino should be established, but it might be made a source of popular recreation, and pains taken to manage it well.

715. (*Chairman.*) You would make it a Vauxhall or a Ranelagh restored. Is that what I understand you?—Vauxhall is associated with clowns and horsemanship, and dark passages. The name raises a wrong idea. But I think it might be made a beautiful garden, and you could then illuminate at night, and allow people to go there for a moderate sum; they might go there by steamboats, and take their refreshments. And if it were well done I think there would be a chance of success.

716. As a tea garden, it would degenerate into a poor sort of thing?—All depends upon the management. I think the management might be such as to make it a very good thing.

717. (*Dr. Lindley.*) Do you know the Jardin d'hiver?—That is a private speculation.

718. It belonged to a society, and has been recently sold for 500,000 francs. That was conducted not in a disreputable way,—not in such a manner as Vauxhall and such places are conducted,—but for musical purposes, evening promenades, and for reading rooms and other matters that naturally and harmoniously could be connected with the place where it stands; but it has not succeeded; quite the contrary, though the conductors introduced shooting galleries. Their necessities compelled them to sell it?—The building was in Paris. I have just seen it. Here is a passage from the "Times" I will venture to put in evidence, which I think is very good:—"The result of this experiment proves a great deal about us of this metropolis that was not known before. It proves that an immense proportion of the people are prepared to use with interest and profit any great opportunity put in their way. Give Londoners of all classes places of cheerful recreation and instruction; give them galleries of art and show-rooms of manufacture; give them objects of curiosity, science, and taste; give them what may please the eye or sooth the ear; and even if the place and the approaches be not as convenient as might be, they will do their part. They will leave their dull streets and darksome habitations. They will do this just as much as the inhabitants of Paris or any other city on the continent. If the experience of this country seems rather against such a conclusion, that is the fault of our Governments and public institutions. Englishmen are pretty much like other civilised people in this respect. They are not so tied to their desks, their firesides, their clubs,

“ or their public-houses as never to assemble for innocent amusement and ennobling instruction. Let us have places,—winter gardens, galleries, passages, or whatever else they may be called,—where the people of this metropolis may assemble whenever they can find time to see the collections of nature and art, which will doubtless accumulate in such edifices. It has long been ascertained that if the public will provide a proper depository for collections, they will soon come in; for the owners of such collections, besides being high-minded and therefore public-spirited men, are commonly more anxious to provide for the security of their collections than for the private convenience of their relatives. If, throughout this metropolis, there were four or five spacious structures, in airy and cheerful situations, combining the various purposes of a promenade, a museum, a bazaar, a gallery of sculptures and pictures, and a school of science, with or without such moderate refreshments as might be necessary, and with or without a small fee on admission, we have no doubt they would prove as popular and as useful as the Great Exhibition. We have no doubt that they would tend greatly to the refinement of the national character, the better understanding of the various classes, the improvement of manners, and every other object for which society is constituted.” In reference to the statement, that if a place is provided collections will come in, I am sure the Crystal Palace would be soon filled with all sorts of things that you would desire to see together, if you would only give the word to the public. It is the case with pictures. I know two collections that would be at once given to the nation if there were room for them.

719. (*Chairman.*) You think we might fill the building with objects that it would be interesting to have, by the gifts of individuals?—Yes.

720. But do you think they would be of lasting interest? People often collect things which their successors do not care about; would they not fill it with things of that sort?—Then you could send them off to the provinces, where they would be glad to receive them.

721. It is with a different notion that people generally give their collections. They are generally taken with the understanding that they are to be kept as a memorial of the gift; but you would take them to give away?—I would turn them to the best possible public account. Allow me to say that I agree in the opinions I have just read.

722. A portion of that paper suggests making a bazaar of the building; should you adopt that portion to it?—No.

The witness withdrew.

Henry Cole, Esq.

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